

VISTA® & OPEN HEALTHCARE NEWS

Roger A. Maduro, Publisher & Editor-in-Chief

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From the Editor's Desk

We continue our efforts to improve the newsletter. In this issue we are introducing our first article. This is a terrific piece on Tolven Health by Dr. Tom Jones. We have also created a new commentary format in the form of an In-Depth Analysis section. This format allows us to provide far greater coverage than that allowed by the commentary section. At the suggestion of multiple reviewers, we have changed the date for this issue to January/February 2008 for a more consistent date format as well as to compensate for a substantial delay in publication.

Roger A. Maduro, Publisher and Editor-in-Chief

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Commentary

We have some major news related to Vista® as well as the U.S. Department of Veterans Affairs (VA) to report in this issue. The news from the VA is rather significant and substantive so we have written a special In-Depth report on the subject, separate from the Commentary section.

There are a number of significant stories on continuing successful deployments of Vista®. In addition the VA Healthcare model is rapidly emerging as a solution to the healthcare crisis in the United States and may play a major factor during the presidential elections.

On December 12 ABC News aired a feature on Vista®. Short but to the point, it featured comments by Phillip Longman, the highly regarded author of *Best Care Anywhere: Why VA Medical Care is Better than Yours*, as well as Dr. Ross Fletcher, one of the original Vista® pioneers now the Chief of Staff at the VA Medical Center in Washington, D.C.

A few days after that broadcast, David Leonhart of the New York Times declared Shannon Brownlee's book, *Overtreated: Why Too Much Medicine is Making Us Sicker and Poorer*, to be their number one choice for economic book of 2007. This is hugely significant for the Vista® community as one of the primary reasons for that nomination is that Brownlee presents clearly thought out solutions to the healthcare crisis. Specifically, Brownlee puts forward the VA model and Vista® as potential solutions for the healthcare crisis.

Later in this issue of the newsletter we will analyze both Longman's proposal for a Vista® Health Network.

We have a detailed report on the successful deployment of Vista® at the Clinica Adelante Community Health Center in Phoenix, Arizona. This is the first major deployment of WorldVista EHR in a community health center setting.

We have reports on the continuing deployments of Medsphere's OpenVista in West Virginia. In addition Medsphere's first Vista® deployment was prominently featured in *Modern Healthcare*. Joseph Conn, writing a two-part series on healthcare IT in nursing homes features Medsphere's Vista® deployment at seven State-run Veteran nursing homes in Oklahoma. As documented by

Conn, this is a major shining example of what IT can do for nursing homes in a part of the health-care industry where IT is virtually non-existent. As documented by Conn, long-term care is going to become a major issue in the healthcare industry as the 37 million baby boomers start to join the nursing home population and require longer-term care.

We also have reports on two commercial products that integrate with Vista®. These are the perioperative suite of products developed by [Picis](#) and a patient accounts management system developed by Informatix Laboratories. These are two of a increasing number of applications that enhance the capabilities of Vista®.

As part of the section on the Vista® Healthcare model, we feature a very good initial report on Vista® and the VA model that was issued by the Congressional Budget Office (CBO).

Last but not least, we have a major feature article by Dr. Tom Jones on Tolven Health. Tolven's EHR/PHR is quickly emerging as a major player in the open source arena. What makes their solution most interesting is that it has been coded from the ground up as an Ajax/Web 2.0 application. This means that this is a fully web-enabled application from the ground up.

Clinica Adelante Implements World Vista EHR in Arizona

Clinica Adelante, a Community Health Center (CHC) with facilities in Phoenix, Arizona, successfully implemented WorldVista EHR at 3 of its seven sites in stages during the months of August and September. This is the first CHC in the United States to implement Vista®. The implementation went very well, and at a fraction of the cost that would have entailed implementing a proprietary commercial product.

This is a significant achievement. Clinica Adelante operates on a minimal budget, as more than 45% of its patients are uninsured (See Table 1). The clinic went ahead with the project despite the financial challenges due to its potential benefits as outlined in Table 2.

Clinica Adelante was able to achieve this feat due to their use of open source software and a business model that encourages a network-wide adoption so that costs

Table 1— Clinica Adelante, Inc. – Who Are We?

- ◆ Community Health Center-Founded in 1979
- ◆ 32,000 Patients and Growing
- ◆ 90,000 Encounters per year
- ◆ Seven Sites and Growing – Located in Phoenix and Surrounding Areas
- ◆ 2 Rural Health Teams with Mobile Clinic
- ◆ 26 Providers
- ◆ 12 WIC Sites
- ◆ Patient Populations:
 - More than 45% are uninsured
 - 50% Speak Spanish Only

Mathew M. King, MD, "The Open Source Vista Experience," Nov. 5, 2007. Washington, DC.

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could be shared by several other centers, according to Matthew M. King, MD, Chief Medical Officer of the clinic. Other Community Health Centers in a local network will be implementing WorldVista in 2008. Dr. King gave a presentation on the deployment during the [2007 Grantee conference](#) hosted in Washington by the Health Resources Services Administration Nov. 5-7.

Dr. King told the audience that “the open source business model itself is worth exploring because its unique characteristics can reduce costs and encourage networking,” adding that “these characteristics can be readily applied to Community Health Center Networks.”

Dr. King outlined the reasons they chose to utilize Vista®, specifically the WorldVista EHR, running entirely on a platform that was both open source and license free. This included Linux as the operating system and [GT.M](#), as the M-language platform. Another consideration is that WorldVista EHR is CCHIT certified.

Describing the open source business model, which is summarized in Table 3, Dr. King pointed out that “since there are no licensing fees, the cost to come to the table is a lot less than proprietary software. And since it isn't proprietary, there are free market forces at the vendor level that can reduce support costs, improve customer satisfaction and create vendor-added software innovations.”

According to Dr. King, “one can structure fixed monthly support fees that can create a financial incentive within the network to recruit more members, since the costs are then redistributed across more users.” He said

**Table 2—Project Background
Why Migrate to Electronic Health Records?**

In 2000, Clinica Adelante, Inc recognized the need to migrate to Electronic Health Records for the following reasons:

- ◆ Provider notes are currently handwritten and sometimes illegible.
- ◆ Electronic Health Records are able to capture chronic disease data at point of service, improving chronic patient care.
- ◆ Electronic Health Records can reduce medical errors in the clinic setting by automatically checking drug interactions, allergies and drug compatibility, automating prescription writing and improving record availability in the clinic, hospital and on call.
- ◆ Electronic Health Records can alert the provider automatically regarding national screening guidelines, as well as locally set criteria.
- ◆ Electronic Health Records can improve patient care by providing point of service guidelines embedded or linked to the provider software.

Mathew M. King, MD, "Clinica Adelante, Inc., Electronic Health Record Implementation Plan, Version 1, March 16, 2006.

that "proprietary IT networks require more licenses and support increases, negating most of the group leverage a network should enjoy." In addition, he noted, "sharing open source repositories of interfaces to labs and PMS, for instance, open source quality management and clinical tools further reduce membership costs going forward."

Dr. King also spent a good amount of time describing the decision to use VistA® as the EHR. Table 4 summarizes the key features that led to choosing VistA®. As he described, VistA® was not the original choice for the clinic. They had been involved in an earlier project with a commercial proprietary EHR that failed. One of the key elements for the clinic is the ability to share patient records through the different sites. The Clinic cares for many patients that are highly mobile, such as migrant workers, so the ability to share patient records allows for the physicians to pull up the full patient record regardless of location.

One of the other points that Dr. King made was the VistA® community itself and all the help and support they had provided him throughout this process.

Table 3—Advantages of Open Source

- ◆ Less Costly (30-50% of the cost of a proprietary commercial product)
- ◆ Lower Licensing Fees (None if using Linux, GT.M, and WorldVistA EHR)
- ◆ Lower Support Costs (50-70%)
- ◆ Vendor Competition (Free Market Forces Remain at Work)
- ◆ Repositories of Free Interfaces, Quality Management and Clinical Tools
- ◆ Creates a Sustainable Financial Incentive for Networking if Done Thoughtfully
- ◆ Promotes Collaboration Across Networks by Sharing Interfaces, Clinical and Quality Management Tools

Mathew M. King, MD, "The Open Source VistA Experience," Nov. 5, 2007. Washington, DC.

Table 4—Unique Features of VistA

- ◆ Highly Customizable, While Maintaining Core Compatibility
- ◆ A Mature and Successful Inter-Site Data Sharing Protocol
- ◆ Sophisticated, Research-friendly Data Mining
- ◆ Advanced Point of Care CCM Tools
- ◆ Rapid Software Cycle
- ◆ The VistA Community
- ◆ Extensive Training and Documentation Materials Available Through VA Web Site

Mathew M. King, MD, "The Open Source VistA Experience," Nov. 5, 2007. Washington, DC.

Picis Adapts Perioperative Solution to work with VistA®

Picis, a leading provider of high-acuity care information systems has ported its application suite to work with VistA®. The Picis software has been fully integrated with VistA® and both enhances the capabilities of VistA® in operating rooms, critical care, anesthesia, and the emergency departments. There is an [excellent article](#) in the July 2007 issue of *Health Management Technology* describing the efforts made by the VA medical staff at the VA Palo Alto Medical Center, in Palo Alto, California to improve patient safety in the ICU with a complete overhaul of their critical care documentation system.

The staff at the VA Palo Alto Medical Center, which is affiliated with the Stanford University School of Medicine, performed an extensive survey of existing solutions and settled on Picis. The article, titled "A Victory for ICU Safety," describes in detail the close collaborative efforts between the VA medical staff and Picis to integrate their solutions to VistA®. This is one of the best articles that *VistA® & Open Healthcare News* has come across that describes the successful development methodology used by VA hospitals to improve VistA®. Sometimes these improvements are carried out entirely by VA staff, and sometimes, as in this case, they are carried out in collaboration with commercial vendors.

Since the initial deployment at the Palo Alto Medical Center, several of Picis' solutions have been implemented in hospitals that are part of the Sierra Pacific Network as well as other VA hospitals across the U.S. Most recently the New Mexico Veterans Affairs Health Care System (NMVAHCS) selected Picis CareSuite® for perioperative automation.

In June 2007 Picis teamed up with DSS Inc. of Juno Beach, Florida, to improve the ability to integrate Picis products with VistA®. DSS is one of the best known companies implementing VistA® in the private sector and is the leading company integrating commercial software with VistA®.

The teaming agreement will allow Picis to tap into DSS' extensive expertise with VistA® as well as use of their Surgery Anesthesia VistA Link (SAVLink) product. According to Picis, one of the benefits of this partnership with DSS is that they now can provide VA facilities with a "unified clinical, business and financial functions and a seamless flow of data across the perioperative continuum

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of care—preoperative, intraoperative and the post-anesthesia care unit (PACU).”

Picis has a [web page](#) with documentation specific to Picis products and VistA® as well as an online presentation by Carlos Nuñez, Picis' Chief Physician Executive on an integrated anesthesia record keeping system for VistA®.

One of the important lessons to be learned here is that companies involved in developing commercial products for healthcare IT can use VistA® as platform for their products. This has been one of the most important lessons that many companies, such as IBM, have learned about open source. IBM has released hundreds of millions of dollars worth of software to the open source community and are using open source software, such as the Apache web server, as the core of their Websphere product suite, for example. In the process they have made far more money than they were making as a closed-source proprietary company. VistA® is not a threat to commercial companies with quality products, it's actually an open source platform that can enable them to deliver a higher quality product in the end.

Informatix Rolls Out Patient Accounts Management System

One of the few holes in VistA®, the lack of a modern patient billing and accounting package has been solved by Informatix Laboratories Corporation. We had a

chance to catch up with Gordon Moreshead the founder and CEO of Informatix and he reports that their Patient Accounts Management System (PAMS) is completed and is being rolled out to multiple sites. It is already demonstrating significant revenue improvements.

PAMS is now in full production at the Chickasaw hospital in Ada, Oklahoma. With virtually the same patient workload year to year, PAMS enabled the site, which runs the Indian Health Services' RPMS application, to increase its revenue by over 18%, or more than 4 million dollars.

PAMS is in the process of being implemented at the Choctaw hospital in Oklahoma and it is in the testing phase at the Gila River Health Center, Phoenix, Arizona. In addition it is in the early stages of training and implementation at a large tribal outpatient facility in Wisconsin where PAMS will replace Medical Manager. The training phase of the deployment will take place in mid January.

In addition to running on RPMS, PAMS also works with VistA®. PAMS is not just some add on. Moreshead was the Chief Architect of VistA® before his retirement from the VA, and managed one of VistA's most prolific development centers. Due to all of his knowledge and experience, PAMS has been fully integrated within the RPMS environment. Informatix partnered with DSS, Inc. to leverage the knowledge and experience of their developers to fully integrate it within the VistA® environment.

Besides the deployments at RPMS hospitals and their clinic networks, PAMS has been installed in a test environment in a VA hospital.

PAMS is a patient billing and accounts receivable application specifically designed for hospitals and health centers utilizing RPMS or VistA®. The application provides all the needed functionality to automate billing for all types of health care services. It provides the ability to check-in, assign procedures, electronically transfer or print claims, electronically and manually post payments and supports aggressive management of denials and claim follow-up. Extensive inquiry and reporting features are provided to obtain a variety of detailed financial and

Table 5—PAMS: Summary of Key Features

- ◆ Fully integrated with IHS/RPMS and VistA applications instead of interfaced
 - Architecture is similar to the VistA CPRS application
 - Operates like just another VistA application within the same database
- ◆ Eliminates double entry of insurance, visit, and patient demographic data
- ◆ Fully integrates claims and patient accounting (AR)
- ◆ Supports multiple levels of messaging within system
- ◆ Ability to review visit/account information
- ◆ Ability to generate billing for multiple sites
- ◆ Provides a Charge Master module
- ◆ Automates many functions such as auto-approve, auto-post, auto-split, auto-adjust, etc.
- ◆ Greatly improves billing and account posting productivity

Gordon Moreshead, Informatix, Personal Communication, December XX, 2007.

account data. In addition, the flexibility of the software design enables the application to be customized to meet site specific needs. Table 5 has a summary of the key features.

The release of PAMS is a significant event for both the Vista® and RPMS communities as lack of a modern and fully integrated billing and accounting package has turned out to be an obstacle to many deployments.

Vista® Health Network—A Solution to the Healthcare Crisis?

For someone who has been following the healthcare industry for years it is hard to become excited about the latest proposal to solve the healthcare crisis. In the past few months, however, we have seen a further elaboration of Phillip Longman's "Vista® Health Network" as well as the release of a groundbreaking book by award-winning journalist, Shannon Brownlee, with substantial evidence that backs the Longman's proposal. In fact, in her book, [Overtreated: Why Too Much Medicine Is Making Us Sicker and Poorer](#), Brownlee proposes a solution to the healthcare crisis that has the same set of elements as Longman's.

What is most interesting is that this solution is resonating through both the news media and political circles across the United States. David Leonhart of the New York Times declared Brownlee's book the best economics book for 2007. In his article, "[No. 1 Book, and It Offers Solutions](#)" Leonhardt states "This was another very good year for economics books....But I'm going with Ms. Brownlee's book because it's the best description I have yet read of a huge economic problem that we know how to solve — but is so often misunderstood." He adds that "surprisingly, Ms. Brownlee lays out an agenda for reform....Hospitals that don't use the fee-for-service model, like those run by the Veterans Health Administration, are already getting better results for less money. They closely track their performance — that is, the health of their patients — and motivate employees to improve it."

First let's look at Longman's proposal and then we can review Brownlee's book. In an article titled "[Best Care Everywhere](#)" and published in the October issue of *Washington Monthly*, Longman expands on the initial proposals that he made in his book [Best Care Anywhere: Why VA Health Care Is Better Than Yours](#). The article needs to be read in full to really understand the argument. We will just try a short summary here.

There are two key observations in his article. First, at the same time that healthcare costs are skyrocketing, there are hundreds of public and charitable hospitals being closed around the country, or scheduled to be closed in the near term. They are going broke largely because of all the un-reimbursed expenses caring for the uninsured primarily in their emergency rooms.

At the same time, the data show that the uninsured have better outcomes when they receive emergency medical care at these institutions than people with private health insurance. The second observation is explained by the fact that for uninsured patients, the hospitals provide all the necessary care for them to get better. There is no financial incentive to do tons of additional treatments

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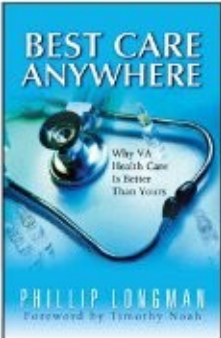
and tests. In the case of insured patients, the perverse incentive is to do as many additional tests and treatments as possible as there is a great financial incentive to do this. This phenomenon is examined in great detail in Brownlee's book, and the tragedy is that this excessive medical treatment can have negative consequences.

How can one keep all those hundreds of hospitals open and provide healthcare to the uninsured? The core of Longman's proposal is to offer those hospitals that are in danger of closure as well as those who are going bankrupt providing unreimbursed emergency care, the opportunity to become part of a Vista® Health Network. They would implement the VA Vista® Electronic Health Record in their hospitals and would adopt the tried and true VA model of medical care which has been documented to be the best in the country. In return for this a governing board he proposes should be set up by the President that would make sure that they receive adequate funding for these hospitals as long as they follow the standards of care set by the VA.

Longman argues that there is already enough money in the system to pay for the creation of this network. Therefore no new taxes would be needed (note that healthcare expenditures in the United States exceed \$2.1 trillion—it is estimated that almost a trillion of this amount is wasted in overtreatment and overhead expenses of insurance companies and the bureaucracy they have spawned). It would be a matter of allocating existing federal funds differently and creating a mandatory health insurance for all Americans as has already been

proposed by several presidential candidates. There would be a “twist” to the insurance proposal, as Longman proposes “people not currently covered by private carriers or Medicare would have the option of receiving their care through” the VistA® Health Network.

The board Longman proposes will give hospitals that follow the VA Model “a contract to care for a guaranteed pool of people -- who will be paid for.” Those hospitals overburdened with un-insured patients will no longer “have to provide uncompensated care to everyone who enters [the] emergency room.” Longman notes that this “pool would consist of those who can’t afford private insurance and those on Medicaid.” He adds that “reimbursement rates would be set much higher than in Medicaid, and when combined with the efficiency in the VA model of care, they’d be high enough to guarantee the



“Phil Longman... offers insights that will be useful to patients and policy makers alike” —*Dr. Elliott S. Fisher*

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solvency of participating hospitals.”

Following the VA model would include not only focusing on the quality of care but also building or utilizing an existing network of primary care facilities, clinics, physicians, etc. that would be the first line of treatment for patients. Just as a major element of the VA model is an emphasis on preventive care, the VistA® Health Network hospitals would focus on keeping their patients healthy.

This last element is critical. For example, the Federal government already pays out over \$40 billion a year to hospitals that care for the uninsured in emergency rooms. It does not cover all of those costs. It also comes at the wrong time. Uninsured patients go to emergency rooms because by law they have to be provided with care. Most of them in fact don’t need emergency care. All they really need is a primary physician. Now, with a VistA® Health Network approach the money would be allocated ahead of time. Allocating those funds to the primary care network, hospitals can then direct uninsured patients to primary care physicians instead of emergency rooms. The costs to the hospitals would be substantially lower and the uninsured can establish a long-term relationship with a physician. The same money that is inadequate to reimburse care at emergency rooms would more than pay for care at primary care facilities.

The VistA® Health Network would also follow the VA’s model of using medicines for which there is evidence that they are actually medically effective. They can also use their size to negotiate lower prices from pharmaceutical companies. This would also save a substantial amount of money that can be allocated for other purposes and would also result in better outcomes for the

patients, as documented in the VA. It would also spare doctors of hordes of pill pushers that clog their time with marketing pitches for this or that wonder drug. What drug to use would be determined by medical evidence, not slick marketing brochures.

As outlined by Longman, a VistA® Health Network, as the VA does today, can provide superior medical care at substantially lower costs than private for-profit hospitals. It can also provide primary care for all of those people now falling through the so-called safety nets.

Is this socialized medicine? Actually, this model is closer to a capitalist model than the model that presently exists. Free market ideologues may not wish to acknowledge this, but more than 60% of all medical expenses are already paid by Federal and State governments. In other words, based on funding the U.S. already has socialized medicine, and it is clearly a dysfunctional version of it. The VistA® Health Network would not be a monolithic institution, but in fact be made by a large number of local and regional networks that would be independently run and managed. Longman notes that they could function on a “franchise” model. The key would be for them to follow a set of standards and procedures that would require the use of EMRs and guarantee the kind of high-quality medical care at low cost that is provided today by the VA medical system.

CBO Report on VA Model and VistA®

The Congressional Budget Office has just released an interim report on the VA Model and how it could be applied to the private sector. [*The Health Care System for Veterans*](#) is a well written and researched report that analyzes the current status of care in the VA and examines the key lessons in its transformation. The report was written as a result of multiple requests from Congress, including the Chairmen of the House Committee on Veteran’s Affairs. At multiple points in the report CBO cites Longman’s book, *Best Care Everywhere: Why VA Health Care is Better than Yours*,” demonstrating how much of an impact the book and Longman’s proposal for a VistA® Health Network have had.

The CBO report is impartial and does not make any specific recommendations. Key findings behind the success of the VA are summarized in Table 6. These findings are consistent with all the other papers that have been written on the subject.

Table 6—CBO: Key Factors Behind VA Quality Improvements
<ul style="list-style-type: none"> ◆ Organizational restructuring designed to share decision making authority between officials in the central office, regional managers, and key personnel at dispersed medical facilities; ◆ Performance measurement targeted toward improving the quality of care ◆ Extensive use of health information technology (health IT).
<p>Congressional Budget Office, “The Health Care System for Veterans: An Interim Report,” December 2007.</p>

Table 7—CBO: Potential Lessons from VA's Performance Measurement and Management Systems

VA's experience demonstrates the potential for improving a system's performance by sustained efforts to monitor indicators of quality, access, and satisfaction. Most of the criteria that VA uses for assessing the performance of senior-level executives, mid-level managers, and even health care providers relate directly to indicators of quality, access, and satisfaction for the facilities or units for which the individuals are responsible. The result has been notable improvements in many of the indicators, suggesting that tracking such indicators closely and consistently may be key to improving a health care system's performance in those areas.

VA's structure as a vertically integrated system that operates on an appropriation may have helped the system to focus on providing the best quality of care possible for a given amount of funds. As noted earlier, for many private providers, fee-for-service payment creates an incentive to perform more billable services and procedures.

Although VA's integrated structure and capitated budgeting alone do not give providers or managers incentives to focus on quality, those attributes may have made it easier for the department to implement its management plan built around tracking and rewarding both managers and employees for improvements in performance.

Improvements in quality might also be encouraged in private settings through the development of more capitated payment systems or a blend of capitation and fee-for-service payment of physicians. Another alternative would be payment systems based on an aggregated physician-hospital unit, in which high volume is penalized. The Medicare Payment Advisory Commission has suggested changes to revamp Medicare's payment systems in order to improve incentives for quality of care.

Congressional Budget Office, "The Health Care System for Veterans: An Interim Report," December 2007.

The report then goes on to analyze other factors in the VA including increase in the number of Veterans enrolled in the system, eligibility requirements, cost-sharing rules, budget, quality care, satisfaction, etc. It also examines the incentives that the VA provides for physicians and facilities to improve quality.

There is an extensive section discussing the critical role of VistA® in the success of the VA. This is one of the most interesting sections of the report as it clearly outlines the potential role of EHR's in improving healthcare. It then warns that it may be hard to replicate the VA Model in the private sector due to the lack of interoperability between EHR's. The report states:

"VA may be uniquely positioned to take advantage of health IT's potential. Independent providers, who interact with a variety of insurance systems, may have a harder time realizing those benefits. Issues of interoperability, the standardization of formats and records, privacy, ownership and control, and the education of and compliance by providers are all challenges to successful implementation that are far more difficult in a non-integrated environment.

An electronic health record is most useful when it is complete—that is, when it contains all relevant medical information about a patient, including treatments or examinations received by outside providers. However, the sharing of information is limited because many of the

EHRs currently in use do not conform to recognized standards for interoperability."

Interestingly enough, the report does present some ways in which other systems could benefit from VA's experience. One specific area, cited in Table 7 is related to performance measures.

This is an interim report. For the final report, due in 2008, hopefully CBO will send their staff to the field to see private and state-sector hospitals and clinics where VistA®, and also the Indian Health Services' RPMS system have been implemented. These initial deployments clearly show that both VistA® and elements of the VA model can be successfully replicated outside of the VA.

Coming Up

As is fairly evident this issue of the newsletter ended up focusing primarily on VistA. It is also far larger than our previous issues and took substantially longer to write. All that said the next issue of the newsletter will focus on some of the other open source solutions in healthcare. There are some major news here including the decision by Misys to follow an open source strategy.

Roger A. Maduro

Publisher and Editor-in-Chief

Articles

Tolven Health Open Source Solution

by Tom Jones, December 2007

Dr. Thomas (Tom) Jones is one of the founders and of Tolven Inc. and its Chief Medical Officer. Dr. Jones has a distinguished career as a teacher, physician, and healthcare IT pioneer. As professor at the University of Chicago's Medical School (1969-1995), he received the Quantrell award for excellence in teaching in 1992; this award is the nation's oldest teaching award and is given by the students at the University of Chicago.

As part of the development of the infrastructure for primary care education and clinical activity, Dr. Jones and his colleagues at the University developed the Centennial Patient Care Workstation, a model for allowing clinicians to enjoy the benefits of new information technology.

In 1995, Dr. Jones joined Oacis Healthcare Systems where his role allowed him to focus more deeply on the clinical functionality of applied informatics. During his 5 years at Oacis, he had the opportunity to work closely with some of the founding members of the HL7 organization.

In 2000, Dr. Jones joined Oracle where he provided the clinical leadership for Oracle's Healthcare Strategy group, including the development of Oracle's Healthcare Transaction Base. During his 5 years at Oracle, Dr. Jones met with provider organizations, payor organizations, academic institutions, healthcare informatics standards organizations, government representatives and pharmaceutical firms in 34 countries. He has been active in deliberations of the European Commission's Directorate-General Information Society and has written major white papers for the EC.

In February 2006, Dr. Jones left Oracle to become a founding partner and Chief Medical Officer of Tolven Inc.

This intro would not be complete without saying that Tom is a terrific human being and one of the best lecturers I have ever met. Somehow or another he manages to take even the most turgid, obscure, and nearly incomprehensible topic and turn it into a fascinating presentation with full attention from the audience. He clearly earned his Quantrell award.--Ed.

We founded Tolven in February 2006. Three of us - Neil Cowles, John Churin, and I - came from Oracle's Healthcare and Life Sciences Group. Our fourth founder, Steven Weiner was most recently at First Consulting Group. Together, the four of us have had more than 100 years of experience in health care and health care IT.

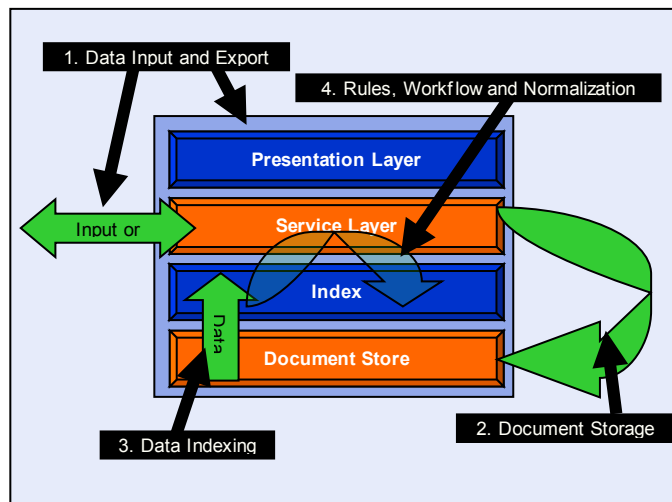
Our driving vision is to be one of the most innovative health information service delivery companies anywhere. We are accomplishing this goal by leveraging the affordable nature and quality of open source software development, coupled with the development of a high quality service organization, to provide and support a "high quality - low cost" secure open source electronic health record solution for consumers and clinicians.

Tolven's information platform, an electronic Personal Health Record (ePHR) and an electronic Clinician Health Record (eCHR) comprise Tolven's Electronic Health Solution.

Business Strategy and Opportunities

Our business strategy is to complement and leverage information technology solutions that are currently available in the market. This extends to the ability to complement and leverage healthcare-related information systems that have functionality to support business processes within any healthcare delivery, management or research organization, with such varied activities as clinical trial management, billing and adjudication, disease management, laboratory management, drug prescribing and healthcare analytics systems.

Tolven opportunities are driven by a combination of direct and partner-driven sales activities. In addition to system integrator partnerships, we have also established partnerships with device and hardware manufacturers. The Tolven information platform is already being evaluated by over 30 clients world-wide for such diverse solutions as the support of personal and clinician healthcare record applications, disease-specific solutions, community-focused health information exchanges and data



The Tolven Platform

repositories for outcomes analysis. Four projects are already under contract.

Open Source Components

The very nature of the open source movement enhances ease of technology transfer. The applications and services offered by Tolven are licensed as open source (GNU-LGPL). Tolven's commitment to open source is absolute and unprecedented in health care. The Tolven source code is managed by the non-profit Tolven Institute and controlled by the Institute's Governing Board to ensure high quality of product development and delivery.

The Tolven platform incorporates those information model and vocabulary standards that have showed durability in healthcare information technology. In addition, many development resources used by Tolven are ones that have become available through the efforts of the open source community. A full overview of the major standards and open source components used in the Tolven platform and applications is available at www.tolven.org.

The Core Data Model is based on an ANSI standard model called the HL7 Reference Information Model (RIM), which is in turn composed of ANSI standard [data types](#). The third major aspect of the core model is based on standard terminologies from [HL7](#), College of American Pathologists ([SNOMED](#)) and several others which have been cross referenced by the National Library of Medicine in the Unified Medical Language System® ([UMLS](#)).

Tolven uses the JBoss Application Server, an implementation of EJB3, the next generation of Enterprise Java Beans technology. This new standard was finalized in 2006. The EJB3 standard is proving to be more productive to use, test and maintain. The JBoss platform provides an embedded Apache HTTP server for reliable and high performance web page delivery.

The Tolven platform is developed as a database-independent solution. The Tolven platform uses the PostgreSQL database, which is a powerful open source relational database system. The Tolven solution uses a relational database in several ways. The UMLS schema stores over

The Tolven Platform

- ◆ **Open Source**
 - ✓ L-GPL License
- ◆ **Standards-Based Solution**
 - ✓ HL7 data types and structures
 - ✓ UMLS coding
 - ✓ Continuity of Care Record index
 - ✓ EJB3, JME, web services, etc.
 - ✓ LDAP, SSL, PKI, etc.
- ◆ **Service Architecture**
 - ✓ Business process support
 - ✓ Rules engine
 - ✓ Third party system integration
- ◆ **Technology Independent**
 - ✓ Support for commercial and open source products

1 million standard medical concepts, over 5 million terms, and tens of millions of relationships and mappings between them.

Tolven applications access the database through Enterprise Java Beans (EJB3) objects, which are in turn implemented by Hibernate for object relationship mapping. EJB entity beans are used without the need for Hibernate extensions. Other than for performance and for some configuration, Hibernate is transparent to the Tolven platform.

Tolven makes use of a number of advanced web-based patterns and technologies in order to improve the user experience and reduce response time latency. The MyFaces incubator project has several AJAX-based components. The goal is to minimize screen repaints, scrolling and typing. This sets the stage for pen-based devices. Faces provides the technology to support multiple languages, style sheets and other customization capabilities. This makes it possible to visually adjust the user interface to specific needs. Faces also provides support for variations in page composition due to user permission and preferences.

Tolven provides built-in process flows. While jBPM does have a graphical process flow designer, it is activated in a programming environment, and thus has limited value for the typical user. Nevertheless, these flows have sufficient optional flows, such that typical process configuration can be handled by preference settings.

Tolven utilizes the new Java 5 language environment for improved maintainability and programmer productivity. From regular expressions to security capabilities, Java 5 is fully exploited by Tolven. Generics have reduced errors and overall produce much cleaner code. Annotations provide a more organized means of configuration than previous XDoclet approaches. All Tolven source code is written in Java.

JBoss Rules is a Rules Engine implementation based on [Charles Forgy's Rete](#) algorithm, tailored for the Java language. Adapting Rete to an object-oriented interface allows for more natural expression of business rules with

regards to business objects. JBoss Rules is written in Java, but runs on Java and [.Net](#). JBoss Rules provides for [Declarative Programming](#) and is flexible enough to match the semantics of the problem domain with Domain Specific Languages (DSL) via XML using a schema defined for the problem domain. DSLs consist of XML elements and attributes that represent the problem domain.

Tolven stores user information in OpenLDAP. This approach allows federation, a variety of authentication technologies, and another decoupling between users and protected patient data. LDAP is used widely, and so should provide as much flexibility as needed for complex, multi-organization, distributed user communities. Tolven has no dependency on the specific Directory Server used as long as it supports the standard protocol.

The platform incorporates workflow, rules and terminology management, thereby supporting a complete solution for the purpose of secure data storage and the semantic re-use of data, irrespective of the source of the data. The platform is ideally constructed for community networks. The platform supports secure information exchange/storage and patient consent functionality that are compliant with the principles of HIPAA as well as with those of organizations such as the Health Record Banking Alliance and Coalition for Patient Privacy. The platform is able to scale to support large regions and supports the rapid response times that are demanded by consumers and clinicians alike. The platform is able to support a hosted service for the required applications.

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The end user requires nothing more than a browser on a modern desktop/laptop or a web-enabled hand held device such as a mobile phone or PDA.

The Tolven electronic Clinician Health Record (eCHR) application allows for seamless exchange of clinical information with electronic clinical information data sources and with the Tolven electronic Personal Health Record (ePHR).

- The Tolven eCHR application includes, at a minimum, the ability to enter, persist, and view all of the critical clinical information data that is required to generate the Continuity of Care Record (CCR)
- The Tolven eCHR allows for linking of ordered services (procedures, medications, laboratory studies, etc.) to appropriate diagnoses
- Upon being granted consent by the patient, the provider can transmit clinical information to another designated provider or to the patient's ePHR

The Tolven ePHR is the patient's view of his/her electronic health record (EHR) information.

- The Tolven ePHR is launched by and maintained by the patient (or his/her explicitly designated agent)
- At the account holder's discretion, clinical information created by other sources (provider systems, drug orders, laboratory results) can be forwarded to and incorporated in the ePHR.
- Consent to view any clinical information in any Tolven ePHR must be explicitly granted by the patient (or his/her explicitly designated agent)

Both Tolven applications, the eCHR and the ePHR, take advantage of open source clinical data definition development (formal re-usable models of domain concepts; see www.wikihit.org) to enhance interoperability. A WikiHIT clinical data definition (CDD) brings together a number of elements into a single reusable domain model. The CDDs that are developed as part of the collaborative nature of WikiHIT include:

- a CDD structure and naming conventions
- a model for aggregating templates into usable components such as assessments and questionnaires
- a mechanism for relating CDDs to clinical codes
- a means to encapsulate rules, logic and dependencies
- links to external references for validation purposes

The Tolven solutions empower consumers to be the prime movers in the creation of a system of electronic health records that can become a major (if not the major) component of a national or regional health information network.

Security and Privacy

Tolven is concerned with protecting data in transit (e.g., SSL) and protecting data at rest (e.g., in the database). Tolven requires proper authentication of users,

accounts (e.g., family, clinic, lab, etc.) and system components (App server, LDAP server, database server). Although typically behind a firewall, Tolven further requires mutual authentication (digital certificates) and secure communication (SSL/TLS) between backend system components. For example, the application server must authenticate the database server that it connects to, and likewise the database server must authenticate the application server. The same approach is used for communication between the application server and the LDAP server.

Document encryption provides an "absolute" level of protection between Tolven accounts. For example, a document created, say, in a person's personal health record is only visible to users of that personal health record account – typically that individual or members of that person's family – no one else. This absolute partition cannot be violated, even by a system administrator with root passwords and a complete copy of the (encrypted) data, log files, etc. It would be as unusual for a physician to have access to someone's personal account as it would for a patient to have access to data in the physician's account

Conclusion

The fact that open source services companies are the fastest growing IT segment worldwide is a strong indicator of the viability of our business model; open source services are projected to represent 32% of all IT services by the year 2010 (Merit Final Report, November 2006). We have used open source components and the discipline associated with open source development to increase the likelihood of dramatically reducing healthcare IT costs and of increasing healthcare quality by enabling consumers and providers to collaborate in the delivery of healthcare.



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In-Depth Coverage

The VA: An Agency In Crisis

By Roger A. Maduro, Publisher and Editor-in-Chief

We have major news about the VA in this issue. Unfortunately, the developments we have to report are not entirely positive. The first centers around the largest outage ever suffered by the VA's electronic medical record. This outage took place on August 31. The second major development is the announcement that the VA has purchased Cerner's proprietary laboratory package to replace VistA's existing laboratory module.

There has been ample coverage in the press on the massive outage at the VA, but very little on the Cerner coup. Both of these events have major implications to both the ability of the VA to provide quality medical care that can serve as an example to the nation and the rest of the world, as well as to the very future of its award-winning Electronic Health record, VistA®. Although we have very limited space for a thorough examination we do want to present some key elements of what is taking place as well as the background.

EHR "Out of Order"

There was a massive VistA® outage on August 31, 2007. It started around 7:30 AM and lasted almost the entire day. The outage affected 17 VA medical sites spanning 1/3 of the world's surface. From San Francisco it spread throughout California and then to all VA facilities in Hawaii, all the way to the Philippines, American Samoa, and Alaska.

The outage was "the most significant technological threat to patient safety VA has ever had," according to Dr. J. Ben Davoren the Director of Clinical Informatics at the San Francisco VA Medical Center in [testimony](#) presented on September 26, 2007, at a Congressional hearing.

In this issue we have multiple articles that describe the outage and the aftermath in the news clipping section. As [reported](#) by Bob Brewin in *Government Executive*, "the outage at the VA's Sacramento, Calif., regional center was the longest of 14 disruptions since that facility started hosting the suite of clinical applications that make up the Veterans Health Information System and Technology Architecture (VistA)."

The August 31st outage is being blamed on "operator error," and policies are being put in place to prevent such future mistakes. An extensive article in *Computerworld* titled "[The VA's computer systems meltdown: What happened and why](#)" goes into great detail on how "a simple change management procedure that wasn't properly followed" caused the outage.

What seems to be missing here, however, is a true re-examination of what led to this massive outage and whether the system that is being created will not lead to many future outages of this, or greater magnitudes.

The immediate technical situation that has led to the large number of outages—outages that are unprecedented in the history of the VA—is the so-called "re-hosting" effort. This is a plan by which the data centers now hosted at 126 VA facilities are being consolidated into 4 national data centers (Regional Data Processing Centers, or RDPCs).

On paper this looks like a great idea. It would be a great idea if VistA® were the equivalent of an email server. In fact that's the example model that is actually being used to justify the potential savings through efficiency that can be achieved as well as increased data security by having the servers in a small number of locations.

The problem with this approach is that VistA® is not an email server. It is a huge and complex application that is both a multi-dimensional database and development environment with over 140 modules that runs the entire VA medical system. The lives and medical treatments of tens of thousands of veterans depend on the clinical modules of VistA® on a daily basis.

VistA® is required for an entire sequence of functions to take place. If it is not running, then the hospital, as a system, cannot function effectively. This was [discussed in detail](#) by Dr. Bryan D. Volpp in the same congressional hearing on the outage where Dr. Davoren spoke. Dr. Volpp, the Associate Chief of Staff, Clinical Informatics, for the VA Northern California Healthcare System, went through in detail the disruptions to inpatient and outpatient care, pharmacy, as well as a host of other functions.

In the case of the pharmacy system, for example, "the labeling equipment and automated dispensing equipment, both linked to VistA®, were unavailable", according to Dr. Volpp. The pharmacy quickly became overloaded attempting to manually fill prescriptions. The pharmacies were unable to fill the prescriptions of large numbers of Veterans and some of these were not filled for days after the system had been restored.

The danger here is that the new architecture for VistA's data centers can lead to additional large-scale failures. Dr. Davoren pointed this out in his testimony, "During the downtime, it became clear to me that many assumptions about the RDPC model were erroneous. Specifically, rather than creating a redundancy to protect facilities from system problems, a new single point of failure caused a problem that could never have been replicated without the RDPC model having been created."

While the "operator error" issue is being addressed, it is not clear that the broader "single point of failure" issue is. By taking VistA® out of the hospitals and locating it in a central data center it means that the application is running in a location that is hundreds to thousands of miles away. Therefore, local hospitals now have multiple additional operational factors. For example, VA hospitals will now depend on having a wide-area network connection that is up and functional 100% of the time. They will also depend on a data center that will supposedly operate, error-free, 100% of the time. On the technical side, this is

an architecture that Vista® was never designed to support.

In the real world there are multiple factors that can confound the best-laid plans and assumptions. These factors range from natural hazards to man-made ones.

Natural hazards include earthquakes, hurricanes, fires, tornadoes, floods, landslides, tsunamis, and so on and so forth. What if an earthquake knocks out the Sacramento Data Center? It is located close to multiple faults. What happens then to all of those VA medical centers whose servers are now housed in Sacramento? Infrastructure disruptions can take place with or without natural disasters. Some of these include electrical outages, damage to the network and transmission lines, network disruptions due to equipment failures, and so on and so forth.

Then there are all the man-made disruptions. These include not only “operator error” but also include malicious attacks on the system. Terrorism and cyberwarfare is a huge threat. Over the past couple of years U.S. defense systems have been under systematic attack by hackers that have managed to penetrate and compromise some of the most secure networks. By concentrating all the servers in a few sites the potential for disruption is much greater.

And just in case all of these threats were not enough, there is always the random backhoe operator. Digging in the wrong place and cutting a major communications line happens often enough. That’s why backhoe operators are the #1 threat to buried lines and should never be discounted.

Could any of these threats affect individual hospitals? Absolutely. More than a dozen major VA facilities were knocked out by hurricane Katrina. Yet all the VA facilities in surrounding States and the rest of the country con-

Table 8—Major VA Organizations

Veterans Health Administration (VHA)

VHA operates the largest health care systems in the United States and one of the largest in the world. The VA operates 163 hospitals, over 800 clinics, and more than 400 other healthcare facilities. VHA has over 200,000 full-time caregivers and over 100,000 additional caregivers and personnel, such as medical students, that rotate through VA facilities. Vista is used across all of its facilities. VHA is heavily involved in medical research and education. In addition it provides emergency medical preparedness and disaster relief for the country as a whole.

Veterans Benefits Administration (VBA)

VBA operates 58 regional offices. It provides benefits and services to American veterans and their dependents. Some of the benefits that are provided include compensation and pensions, education, loan guarantees, and insurance.

National Cemetery Administration (NCA)

NCA is responsible for providing burial benefits to veterans and eligible dependents. It manages 120 National Cemeteries nationwide. In addition it provides grave markers in the U.S. and the rest of the world for veterans. It also administers the State Cemetery Grants Program that complements the National Cemeteries network.

Source: U.S. Department of Veterans Affairs

Table 9—Challenges Faced by the VA

Historically, to be sure, the VA has faced many challenges, and still does.

- ◆ Unlike Medicare and Social Security, it has no trust fund to ensure adequate and predictable funding.
- ◆ In building or closing hospitals it faces intense micromanagement from Congress.
- ◆ Its patients are older, poorer, and far more prone to addiction issues, traumatic injury, and chronic illness than the population as a whole.
- ◆ It is subject to intense and not always helpful scrutiny from the press, veterans-services organizations, and other special interest groups.
- ◆ It has to plan against imponderables that other health care providers can safely ignore, such as when and for how long America will go to war and what the physical and mental casualty rates will be.
- ◆ And while the VA is not a monopoly, many of its patients have little ability to switch to competing providers.

Source: Phillip Longman, “Best Care Everywhere” *Washington Monthly*, October 2007.

tinued to operate and provided support and backup to the affected personnel and patients. There was no single point of failure that could bring them down. In fact, Katrina demonstrated that VA facilities could continue to operate independently in the face of a major catastrophe.

Organizational Issues

There is a more significant story here than an outage or technical issues surrounding data centers. Davoren focused his testimony on the impact of the massive reorganization that Congress forced on the VA almost two years ago. Most of the former and present VA personnel contacted by Vista® & Open Healthcare News believe that the outage is a manifestation of systemic problems with the reorganization.

Some background would help evaluate the situation. The U.S. Department of Veterans Affairs is made up of three major organizations, twelve staff organizations, and eight staff offices. As outlined in Table 8 the major organizations are the Veterans Health Administration (VHA), the Veterans Benefits Administration (VBA), and the National Cemetery Administration (NCA).

Up until two years ago each one of these organizations had their own CIO with budget authority to manage all the IT operations in those organizations. In addition, the VA as a whole had a CIO office with a modest amount of funding.

From an information technology standpoint, each VA organization pretty much ran their own ship. There were positive and negative aspects to this organizational structure. One of the positive aspects of this arrangement, specifically for the VHA, was that their key IT people were almost all career civil servants who worked their way through the VA medical system and rose based on merit and accomplishments. They fully understood how Vista® and the VA medical system functioned and how to keep it running.

In contrast to the VHA method of promotions, almost all the top level positions in the VA are filled by political appointees. These are individuals appointed to those positions by the President. These include the Secretary, undersecretaries, and CIO positions. Some of the appointees and highly qualified and are appointed precisely because of their knowledge and skill and strive to make a lasting and positive contribution. Others may turn out to be individuals whose only qualifications were large contributions to a political party, campaign, or personal friendship with the new President. Dealing with the political appointees is always a challenge.

Phillip Longman makes a similar point in his [article](#) on the Vista® Health Network in *Washington Monthly* magazine. He notes that the VA has succeeded despite all the challenges that it faces, including having to face “intense micromanagement from Congress.” Table 9 outlines some of the challenges faced by the VA as discussed by Longman.

In the case of VA CIOs many of those appointed for the past decade have had no knowledge and experience running either Vista® or in fact, any healthcare system. As things go, many of them have tried to get rid of Vista® and have it replaced with commercial systems. The organizational structure, however, provided checks and balances as the IT staff at VHA would politely listen to the political appointee CIOs and then just go about their business of running the VA medical system. In other words, the organizational structure protected the continuing successful operation of the healthcare system.

This situation changed with the arrival of a CIO with an unusual amount of power. This was Robert McFarland. McFarland, a close personal friend of President George Bush, was sworn in as VA CIO in January 2004. McFarland had retired as the Vice President of Government Relations of Dell Corporation. McFarland, an expert at sales and marketing, set out to increase his budget and power, seeking to centralize all IT functions in the VA under his control. He found a powerful ally in Congress, Representative Steve Buyer (R-Indiana), who was Chairman of the House Veterans' Affairs Committee. Together with its Senate counterpart, this committee determines the annual budget of the VA.

McFarland and Rep. Buyer took advantage of the publicity generated by three major scandals facing the VA to accomplish their goals. The first scandal was the failure of a major project to create a new financial system called CoreFLS. The project was a total loss at a cost of \$342 million. The second was the continuing management problems with the project to upgrade Vista® itself called HealthVet. The third was the theft of a laptop containing the names and social security numbers of millions of veterans that had been taken home by a VA employee.

Rep. Buyer's Committee sponsored a whole series of hearings and bills in 2005 and 2006 to address the issue of the organizational structure of the VA. This was a very real issue that the VA had been working on for years. During the hearings the discussion centered around two models, a federated model versus a centralized model. This debate came to a head during the Committee hearing on Sept. 14, 2005. The entire record of the hearing can be downloaded [here](#) in PDF format. It is rather sub-

Box 1—Testimony by Dr. Jonathan B. Perlin
Undersecretary for Health, VHA, Sept. 14, 2005

DR.PERLIN. ...First, let me acknowledge the positives of either centralization or a federated approach. We are one VA. We should have seamless interoperability between benefits and health and commemoration of veterans, period. We should have an architecture that supports and facilitates that. Some might actually agree that the control of funds within the office of Information Technology will allow us to coordinate our projects and realize an enterprise architecture that delivers that.

My concern about centralization really relates to our history, as well as the experience of health information technology in the United States.

Health information technology is not pervasive. Less than 20 percent of health care providers, certainly hospitals, have health information systems, and certainly VA has been hailed for its exceptional performance in delivery of high-quality health care facilitated by health information technologies.

In fact, this month's issue of healthcare papers in Canada, (an entire issue) was dedicated to understanding the improvement and the transformation of VA. It recognized the health information technology as a supporting technology, and it recognized further the performance measurement and the accountability.

Sir, you asked about accountability. our performance is our accountability. Our performance is the fulfillment of our mission of high-quality health care services.

We've had a history of a centralized health information before. In fact, before this very Committee, the Inspector General testified he did a “flyoff” between one centralized and one decentralized program. Ultimately it was the centralized one that had failed.

It failed because it had characteristics that were similar to some of the shortcomings of CoreFLS. It didn't engage the end user. So with all due respect to what I've just heard in terms of testimony and with absolute cognizance of health information in the United States and the experience of health care executives and chief information officers in health care, I support the consolidation of the infrastructure, the generic architecture, the enterprise architecture, but the attachment of development to the clinicians, to the end users is the defining characteristic and has been reported in Healthcare papers, among other journals, as the key feature of the success of the health information system in VA.

So in the federated model, I think we gain the efficiencies but preserve that unique aspect of the information system that allows and has demonstrated VA's ability to deliver high-quality care to veterans.

...
MR. MANSFIELD. Mr. Chairman, Dr. Perlin would like to add another point, if he may.

DR. PERLIN. I think you asked for the pros and cons of the two models, so I was very taken by the testimony where it supported the thesis that I just offered.

It was said that one of the risks is a lack of intellectual investment in the activity.

That singularly has been the disconnect in the clinical community in terms of getting health information technologies to work. Maintaining that connectivity with clinicians, is one of the key features. That is why I recommend the federated model.

stantive (234 pages) but it's worth reading for those who seek to fully understand the background to the present crisis in the VA.

Representing the VA were Gordon Mansfield, the Deputy Secretary, Dr. Jonathan Perlin, Undersecretary of the VHA, Daniel B. Cooper, Undersecretary for the VBA, Richard A. Wannemacher, Jr., Acting Undersecretary for Memorial Affairs, as well as VA CIO McFarland,

Box 2—Lessons from Katrina

by Roger A. Maduro

One of the major topics of the hearing was the VA's response to the Katrina disaster in the Gulf. For those readers who are not familiar with the story, we should point out it was an extraordinary success story. While most Federal, State and local agencies failed in their responses to the disaster, the VA was able to move all of the veterans under their care to safety unharmed. Over 1.5 million residents and refugees lost all of their medical records. In sharp contrast rescue workers, physicians, and personnel from shelters anywhere in the U.S. were able to tap into the full medical records of more than 40,000 veterans who became refugees.

The Congressmen at the hearing, however, chose to focus on some of the technical difficulties the VA encountered in moving the latest medical data from New Orleans to Houston as the hurricane made landfall and damaged the VA facilities. The data had to be moved by tape and the servers in Houston had to be reconfigured in order for the data to be loaded. As explained by Dr. Perlin this manual step was due to the fact that the commercial wide-area network had failed so there was no way to backup the data via the network.

At the same time Perlin pointed out that "one of the take-home lessons" was that the VA facilities "could continue to operate independently."

As explained by Dr. Perlin, several VA facilities in the path of the storm actually continued to operate and provided critical medical services to veterans as well as other victims of the hurricane. VistA's resiliency was critical to those functions.

Citing several press articles that highlighted the success of the VA in preserving the medical records of their patients, Dr. Perlin pointed out that "both [articles] comment on VA's effectiveness in meeting the mission." This mission, Dr. Perlin points out "is serving veterans—ultimately our mission, not an IT mission—a mission of patient care, because those records could be made available to the entire system, being hosted at another facility, even after New Orleans came off-line."

Dr. Perlin then discussed the need for a national master patient record. In this context he supported the building of four national data centers that would make the patient records and mirror each other to prevent failure.

Addressing the earlier section of the newsletter that discusses these regional centers, as can be seen in the Congressional record, the idea was for the centers to serve as a national data repository and backup system, not as a replacement for the local VistA servers. Katrina demonstrated the importance for VA facilities to be able to operate independently in an emergency. That ability is lost by design as a result of the new "re-hosting" plan.

and Pedro Cadenas, Associate Deputy Assistant Secretary for Cyber and Information Security.

Only four Congressmen attended the hearing, Chairman Steven Buyer (R-IN), Gus Bilirakis (R-FL), Lane Evans (D-IL), and Mike Michaud (D-ME).

Gordon Mansfield began his testimony by outlining the extent of the benefits provided by the VA and then making what was perhaps the most important statement of the hearings when he said "one of the first considerations I believe we have to these millions of veterans is to do no harm." Mansfield emphasized "we must recognize that our current IT system is working and we are performing and providing those benefits." He added that "one of the reasons we are performing is because over the past decades we have decentralized our system."

Mansfield supported the federated model as "the best answer for VA at this point." Mansfield then turned to

Dr. Perlin for a more detailed elaboration. In a statement that we quote in Table 10, Dr. Perlin gave a brilliant and concise explanation as to why the VA should adopt the federated model.

One of Perlin's sharpest comments was his response to Rep. Buyer's demand for "accountability." Perlin said "Sir, you asked about accountability. Our performance is our accountability. Our performance is our mission of high-quality health care services."

There was an extensive back and forth on this and other issues during the hearings but the final discussion boiled down to the federated model versus the centralized model. The Undersecretaries of all the VA business organizations were completely unanimous on this issue—they all supported the federated model and made very clear cases for their stand.

At that point Rep. Bilirakis turned to McFarland and asked point blank in the most interesting way, "Which model would you prefer, sir? You, our political appointee?" The former Dell salesman, "our political appointee," as Rep. Bilirakis called him, contradicted his boss, Deputy Secretary Mansfield, as well as the Undersecretaries and other experts from the VA, and supported the centralized model.

Not long after this hearing both houses of Congress ended up passing the bills forcing a centralized model upon the VA. McFarland's budget went from \$50 million a year to \$1.2 billion. He won near total control of all IT activities and personnel in the VA. [This article](#) by David Perara in *Government Executive* provides a good background flavor to the story.

Curiously enough, at the point that it was time to start implementing this massive reorganization, McFarland quit. He told the press that he was frustrated with the pace at which the VA executive leadership was moving to implement all the changes. In addition, as reported in [this article](#), his belief was that "the reorganization has produced a contentious atmosphere at the executive level" adding that his "continued presence in it would be detrimental to the department's implementation of it." This was a rather shocking move on his part. True reformers never quit when they win the power to carry out their reforms, if that is what McFarland's intention was.

Former VA Secretary Jim Nicholson approved McFarland's plan and ordered an accelerated implementation. Robert Howard, a highly-respected former Army Major General, was nominated to replace McFarland in August, 2006, and his nomination was approved by Congress at the end of October. Howard brought an entire team of people from the Department of Defense to implement the plan that McFarland laid out in opposition to all the senior executives and top experts at the VA.

"To do no harm"

With this background in mind we can now focus on the effect of the reorganization on VistA® and the running of the VHA healthcare system.

The first item is to emphasize that this is not a black-white story. There is no question that a major reorganization of some of the VA's IT operations was needed. These improvements were clearly laid out as part of both

the federated model as well as the centralized model. The changes in the federated model were already being implemented by the VA before the series of Congressional hearings started and they have already had significantly positive effects. Over time these changes will achieve significant savings.

The issues many have raised here, as well as the concerns that were raised in Congress by the experts from the VA concern the area where the centralized model departs from the federated model that they had proposed. As the experts warned in their Congressional testimony, the adoption of the centralized model has caused damage and led to the present crisis in the VA. Secretary Mansfield's warning, "to do no harm," went unheeded.

We will now focus specifically, and narrowly on the key issue for our readers, which is the mission of the Veterans Health Administration to provide quality medical care for veterans.

The Human Fabric

Up until the reorganization, all the IT personnel in the VA medical system (hospitals, clinics, etc.), reported directly to the local leadership or to the national leadership of the VHA whose mission was focused on clinical care. In a real way the IT staff were an integral part of the team of people that took care of the patients. As part of the reorganization all personnel now report to central offices and are answerable to a chain of faceless bureaucrats. Their performance is now based on technical issues. This change in many ways has ripped apart the "human fabric" of relationships that the VA counts on for the proper running of its medical system.

Testifying in the House, Dr. Davoren said "the focus of reorganization/realignment was on technical relationships and not on how the mission of VHA would be communicated...". Davoren warned "in trying to create a new structure in the name of 'standardization,' support would wane to a 'lowest common denominator' for all facilities, no matter how diverse their actual needs were."

Alignment of Information Technology

A more elaborate discussion of this topic was presented a week earlier by John Glaser, PhD, Vice-President and Chief Information Officer of Partners Healthcare in Boston, Massachusetts, at the Senate Committee on Veterans' Affairs. Partners HealthCare is an integrated system of medical care whose members include the Brigham and Women's Hospital, the Massachusetts General Hospital, community hospitals, health centers, physician practices and visiting nurses. In addition to being a CIO for 20 years, Dr. Glaser is also the Founding Chairman of the College of Healthcare Information Management Executives (CHIME); the country's premier organization for healthcare CIOs.

Dr. Glaser's [testimony](#) is truly the best overview of how the reorganization is throwing the VA out of alignment. For that reason excerpted a good part of the testimony in accompanying box. Notice that Dr. Glaser's statement is very similar to Dr. Perlin's testimony at the House hearings two years earlier.

Box 3—A Rift in the Space-Time Continuum? by Roger A. Maduro

One of the most surprising elements of the Congressional debate over the future of the VA was the level hostility shown by Rep. Buyer to the key leaders of the VA. During the Sept. 14, 2005 hearing Deputy Secretary Mansfield had barely started his testimony when Rep. Buyer threw a fit over Mansfield's request to add several journal articles and press reports regarding the accomplishments of the VA in improving the quality of care for veterans into the record.

In a heated tone of voice Rep. Buyer made it clear he would not allow these materials into the Congressional Record. The materials included articles from the *Washington Post*, *U.S. News & World Report*, and even a RAND Corporation research report published in the *Annals of Internal Medicine* that ranked the overall quality of VA medical care as significantly higher than any other healthcare system in the country.

Rep. Buyer only allowed studies that were critical of the VA into the Congressional Record. A victim of this censorship was even the now famous original article by Phillip Longman "[The Best Care Anywhere](#)," that appeared in *Washington Monthly*. This article led Longman to write his award-winning book that has the same title.

The level of hostility is particularly surprising based on the reception that the VA was having elsewhere in Washington. Just two weeks after Rep. Buyer's hearing, the Secretary of the Department of Health and Human Services, Michael Leavitt, launched the [American Health Information Community \(AHIC\)](#). This work group was tasked with coming up with a national healthcare IT policy. It has [18 members](#). These include both public and private sector representatives who are top experts in healthcare and information technology. For example, among the members we find Dr. Julie Gerberding, Director of the Centers for Disease Control and Prevention as well as Craig R. Barrett, Chairman of the Board of Intel Corporation

Dr. Perlin, as a representative of the VA, was one of the original members of the group. The reception he had at AHIC was diametrically the opposite of what he faced in Congress. The main AHIC group met almost once a month and took their mission very seriously. Since they were searching for successful healthcare IT models, it turned out that most of the meetings for the first year were dominated by discussions about the VA. Pretty much every time a topic would come up, Secretary Leavitt, a no nonsense Westerner who was Governor of Utah for 8 years previous to his appointment, would turn to Dr. Perlin and ask, "so how does the VA do this?"

Between all of the questions, presentations, workgroups, meetings and discussions, Dr. Perlin was able to lay out a clear set of guidelines that could be used to fix the healthcare crisis in the U.S. Dr. Perlin's contributions were incorporated into the policy documents of the group. After Perlin resigned as Undersecretary of the VHA in August of 2006, he was replaced in AHIC by Dr. Robert Kolodner, one of the original architects of VistA and the Chief Healthcare Informatics Officer for the VA. Based on his work on the committee, Dr. Kolodner was chosen as the [National Coordinator for Health Information Technology](#).

I was fortunate to attend the first year of AHIC meetings in Washington, sitting just a few chairs away from the main conference table. So I had a front row seat to these discussions. All of the meetings have been videotaped so those interested in seeing the discussions can tune in to the [webcasts](#).

The question remains, how was it possible that at one building in Washington, the AHIC community carefully listened to and adopted Perlin's recommendations. Yet, Rep. Buyer's Committee, holding their hearings just a block away over same time period, decided to force the VA to reorganize over Perlin's clear opposition and disregarded his warnings that it will lead to failure? This makes one wonder whether Rep. Buyer's Committee was operating in a parallel, yet separate universe? I'll leave it to Star Trek fans to figure this one out.

An American Success Story

What Dr. Glaser and Dr. Perlin told Congress is not based on opinion, it has been thoroughly documented in the medical literature. There are literally dozens of peer-reviewed papers that have appeared in major publications. Having reviewed many of these papers, there is one in particular that really stands out because of the clarity of its writing as well as its all-encompassing review. This paper, "[The Veterans Health Administration: An American Success Story?](#)" was written by Adam Oliver from the London School of Economics, and published in the *Milbank Quarterly* the first quarter of 2007.

The 30-page paper is focused primarily on the audience of people that are looking to the VA as a national healthcare model. This includes the institutions in Britain that have been trying to replicate the capabilities and functionality of Vista® for many years now.

The paper traces the history of the VA from the 1990's when "the VHA had a reputation for delivering limited, poor-quality care," to recent years where Oliver shows evidence indicates that "its overall performance now exceeds that of the rest of U.S. health care."

As he goes through the history of change in the VA, Oliver focuses on what he calls "The Change Agent." This was Dr. Kenneth W. Kizer, a conservative Republican, appointed by President Bill Clinton in 1995 as Undersecretary of the VHA. Clinton tasked Kizer with the job of fixing the mess in the VA. Transcending party politics, and partisanship, Clinton had picked the right man.

Oliver states "Kizer outlined his reform proposals in a blueprint for the future of the VHA entitled *Vision for Change* (Kizer 1995), a document that is actually quite inspirational, surprising in a world in which most government policy documents tend to be written in turgid civil-service language that seems almost designed to discourage the reading of them."

Oliver discusses in detail the reforms and changes implemented by Kizer and how they fundamentally changed the way that the VA healthcare care system was organized and how it operated. Oliver ties all of those changes to the improvements in the quality of care at the VA.

Oliver also discusses the role of Vista® in this transformation. Interestingly, he states "Deploying the EHR on a national level between 1997 and 1999 was immensely challenging, and this process is continuing, but the EHR would probably not have succeeded at all if a system had simply been imposed on physicians without their being closely involved in its development." Note that this is exactly what Glaser, Perlin, Mansfield, Davoren, and all the other actual experts that have testified have been trying to get across to Congress without success.

Oliver does not stop here, he emphasizes "These are lessons for other systems that are developing electronic health records, not least the English national health service (NHS), which recently allocated approximately \$10 billion of public finance to the private sector to develop an EHR."

Oliver then reviews the costs of developing and implementing Vista®. These turn out to have been only a frac-

Box 4—Alignment of Information Technology

John Glaser, Testimony at the Senate Committee on Veterans Affairs, Sept. 19, 2007.

Numerous studies of information technology investments by a wide range of organizations across many industries have all identified a factor critical to effective use of the technology - alignment of the information technology function, agenda and accountability with the needs and management of the organization.

Organizations, such as American Airlines, Federal Express, Capital One and Merrill Lynch, which have consistently demonstrated exceptional information technology use have several common characteristics:

- The leadership of the organization sets the information technology strategy and agenda. The leadership actively defines the plan, manages project resources and implementation, addresses issues and assumes accountability for results.

- The staff of the organization have been given the responsibility for the ensuring that an application meets their needs, managing specific implementations and changing related process.

Failure to achieve strong alignment can pose significant problems for the organization. Information technology projects may be well managed and the information technology group may be very efficient but, without alignment, they are at great risk that their work is not addressing the priority needs of the organization and the delivered applications do not reflect the needs of the staff who do the organization's work on a daily basis.

The excellence that characterizes the VA health care information systems was a result of exceptional alignment. The VA Health Administration leadership had direct authority over the information technology strategy, resource allocation and management of results. The physicians and nurses who deliver care to our veterans had direct access to the analysts and programmers who created the applications; indeed the analysts and developers viewed these providers as their true bosses.

I am concerned that recent changes in the VA information technology organization structure will damage alignment. Steps that centralize authority within the VA in a manner that reduces the direct management of information technology by those who are accountable for the delivery of medical care and are most knowledgeable about the needs of the healthcare system runs a very significant risk of undermining the progress that has been made.

These concerns acknowledge the value of a central VA information technology group in areas such as developing technology standards and providing non-healthcare specific financial systems. However, too much centralization will damage alignment and diminish the excellence of medical care."

tion of the cost that Britain has already spent trying to develop its own EHR.

However, not all is well at the VA, according to Oliver. In a section aptly titled "The Undoing of the Change Agent," Oliver details how the work started by Kizer is being reversed. Oliver notes that at the end of his first four year term, "a conjuncture of events very different from those that had opened the window for reform were conspiring against Kizer's leadership." As outlined by Oliver the main opposition to Kizer came from Congress and eventually led to his resignation.

Kizer's resignation could have had a detrimental effect as discussed by Oliver, but fortunately, several leaders continued with Kizer's work. Oliver states, "Thomas Garthwaite, who had been Kizer's deputy undersecretary, maintained the momentum of the reforms during his

Box 5—Culture Clash

by Roger A. Maduro

One of the little understood aspects of the crisis in the VA is the cultural crisis that Congress created by forcing the VA to adopt a software development methodology that is completely alien to the organization.

From the beginning VistA was developed by what amounted to a decentralized underground “IT guerrilla” movement. They members of the “underground railroad,” as they were called, were challenging the existing centralized system that ran unwieldy and unusable software systems. From those early days doctors and nurses were completely involved in the design and development of the software. They did it either hands on, or in collaboration with the local technical and IT people.

This became the trademark of VistA. Organic collaborative development throughout the VA with the clinicians completely engaged in the development and improvement of VistA. Some of the major improvements in VistA, such as bar code medication, came as a result of this community work.

The end result is an EHR that is fully optimized to assist the doctors and nurses take care of their patients. They love the system, and if something does not work, they roll their sleeves and make the improvements themselves. Then they share the improvements with the VA as a whole.

Up until the reorganization, there were between 5,000 to 10,000 physicians and nurses in the VA that were actively involved in programming VistA in their spare time. In terms of the full-time developers, a large percentage of them actually started as clinicians in the VA. After showing interested in IT, they were given the option to be taught the M programming language and nurtured into becoming full-time developers.

Conversely, IT people in the VA are an integral part of the team that cares for veterans. It is normal for physicians and nurses to grab new IT personnel to do the patient rounds with them so they become fully acquainted with what goes on in the hospital and the importance of their role. One finds many of these IT staff at [WorldVista](#) conferences, many now retired, ready to tell their stories. Almost invariably the story comes up of the event, usually involving a particular patient, when they actually understood how their work could impact the health and well-being of the veterans under the care of their staff. So even in this day and age when job hopping is the norm, one finds that most IT people at the VA work there for 20 to 30 years. They see their work as a mission, not just a job.

As a result of the congressional mandate to centralize IT, this very methodology has been rent asunder. The teams have been dissolved and now all IT personnel report directly to headquarters. The collaboration between clinicians and IT has been severed.

On the leadership side, a large contingent of personnel from the Department of Defense (DoD) was deployed to the VA to carry out the centralization. They have taken over virtually all IT leadership positions.

These individuals not only do not know the culture and history of the VA and VistA, they have a completely different and opposite outlook when it comes to software development.

Military Health System

The VA takes care of Veterans. The military has an entirely separate healthcare system to take care of active duty personnel and their families. It is called the Military Health System (MHS). Walter Reed Hospital is part of MHS.

Historically the software development methodology used by DoD through the agency with some notable exceptions, has been the opposite of the VA's. While the VA developed VistA internally using in-house resources, the Department of Defense in general outsources the bulk of its work. These are completely opposite approaches. This difference in philosophy is causing a major cultural clash within the VA.

There is a lot of history here. When the Indian Health Service (his) needed an EHR they picked VistA and have collaborated with the VA since then (see Nov/Dec 2007 issue for the full story). When DoD went looking for an EHR two decades ago, they also picked VistA. However, since their development methodology is based on outsourcing, they contracted all the development work for their version of VistA. That resulted in the creation of a major fork to VistA and a long-running rift between the agencies. The contractor-based approach led to several major failures in DoD's EHR efforts. A fully functional EHR, AHLTA/CHCS finally emerged.

AHLTA has some great features and some components are technically more advanced than VistA. It also has a dedicated core staff that is working very hard to make it a world-class system. At the same time, it has a very particular problem. While AHLTA is functional it was not well received by a large number of the clinicians. Designed and built by contractors, it does not work the way physicians and nurses do. Many military medical facilities refused to install it, and some actually took it down after a trial period. This being the military DoD's top brass solved that issue by just ordering everyone to use it. They chose until recently to ignore the fundamental problem that led to situation—the development methodology. As a result, MHS is now facing an exodus of physicians and nurses. They find AHLTA frustrating to use and believe it gets in the way of caring for their patients.

And the question is, where are those responsible for this situation in the Military Health System? The new VA organizational chart would be a good place to start. Everyone at the VA knows what the history of both MHS's earlier efforts as well as AHLTA. Over the past two years, the VA has been reorganized to operate the same way as DoD which means that the future of EHR will be in the hands of contractors, not clinicians. For clinicians at the VA, this is a worse-case scenario. The anger at the new DoD dominated IT leadership is such that many interviewed for this article referred to them as “the people from the Dark Side.”

The curious thing is that MHS has learned its lesson and over the past few years and entire new leadership has emerged and many are working hard at adopting a new development methodology that is called Open Technology Development. This is an open source development methodology. We discuss this story in more detail below in Box 8. If this new approach takes root, they can fix the problems they have.

tenure as (initially acting) undersecretary between 1999 and 2002.”

According to Oliver Garthwaite “resigned over disagreements about policy direction with Anthony Principi, the first VA secretary appointed by the Bush administration.” Oliver notes that the leader for the reforms became Dr. Jonathan Perlin. Oliver's paper was written in 2006 and he clearly conveys his concern that the reforms may not survive Perlin's departure as Undersecretary in August 2006.

Rip-and Replace?

Just a couple of months after the massive outage at the VA, the next bombshell was dropped on the VA and VistA® community. The new IT leadership of the VA had quietly chosen Cerner as a replacement for VistA's laboratory module. This announcement was received with howls of protest from the VistA® community.

The discussion became so heated in the famous Hard-Hats mailing list that several requests were made to take the discussion to a separate list. Many active members of

the HardHats list work at the VA and were afraid they were going to lose their jobs if the discussion of the Cerner purchase, as well as bitter criticism of the new VA leadership, continued in the mailing list. List moderator Gregory Woodhouse, one of the original core developers of Vista® and a highly regarded member of the community, became so upset with the intensity of the discussion that he resigned as the list moderator. The discussion had to be taken to an alternative mailing list set up by the [WorldVista](#) organization set up to discuss non-technical issues related to Vista®.

The reason for the uproar is that this is the first major departure from the VA's successful development methodology for Vista®. Over the past 30 years Vista® has been developed in-house at the VA using its own development methodology.

Looking at it from a modern perspective, the VA's development methodology is today's equivalent of an open source collaborative development model. This has been the extraordinarily successful model that has led to such major open source projects such as the Apache web server, Linux, BSD Unix (and MacOS X is based on BSD), the Firefox web browser, Open Office, the Zimbra mail server, as well as pretty much all the programs and applications that run the Internet, to mention just a few.

Ripping out Vista's own laboratory module and replacing it with Cerner's represents the exact opposite methodology to the one that the VA has followed successfully until now. In order to provide a better background we have a series of background documents and links at the end of this section. This includes testimony presented by Dr. Paul Tibbits, Deputy Chief Information Officer for Development for the VA's new Office of Information and Technology (OIT) at the same congressional hearing where Dr. Davoren spoke. This testimony represents the most concise presentation of the VA's new policies that we have been able to find.

In regards to overall policy issues, Peter Groen, former Director of the VA Health IT Sharing Program, wrote a succinct post that appeared in the HardHats mailing list on Nov. 8. Groen makes four points (see Box 7—Strategic Missteps by VA) which address not only the Cerner issue but also some of the other key strategies that the new IT leadership of the VA is following. He concludes “if I could think of four strategies I would think the VA would absolutely choose to avoid, the new OIT management team has chosen to pursue all four.”

One should pay close attention to his post. Groen started working at the VA's Atlanta facility more than 30 years ago where he shared an office in a trailer with Dr. Robert Kolodner, now the National Health IT Coordinat-

Box 6—Strategic Missteps by VA

*By Peter Groen,
Former Director, VA Health IT Sharing Program
HardHats Mailing List, Nov. 8, 2007*

I have been watching some of the steps VA has taken over this past year with regards to management of health IT systems that I would consider to be major strategic missteps. The following are some informal observations.

VA reorganized and centralized its IT resources under the VA Office of Information & Technology (OIT). Rather than centralizing selected corporate wide functions and resources (e.g. planning, policy, security), the VA went further and centralized IT development and operations resources of all administrations under OIT.

Rather than following best practices that have emerged and are being followed by many other organizations with regards to decentralizing management of these type of resources to the business side of the house, the VA chose to pursue an approach that was widely used in the past but which are no longer strongly advocated.

The expected result will be a loss of innovation, lack of responsiveness to business needs, and a tendency to lose its leadership position in the healthcare industry, especially with regards to health IT systems.

The VA Office of Information & Technology (OIT) recently chose to award a contract to Cerner to replace the Vista laboratory module. This seems to be part of a pattern of steps being taken to unplug Vista software modules over time and replace them with commercial off the shelf (COTS) products.

This strategy leads to a system composed of a mix of multiple, costly commercial systems that will all need to be interfaced - an approach that many private sector hospitals have put in place and been roundly criticized for following. The VA has consistently been praised for the tightly integrated Vista software modules that are written in the same language, use the same database, and require no extensive interface solutions. This appears to run contrary to recommended best practices in health IT.

The VA Office of Information & Technology (OIT) has begun to centralize its hospital information systems at four regional pro-

cessing centers. Unfortunately, one of these centers recently went down basically disabling all the VA healthcare facilities on the west coast, Hawaii, and Pacific Islands.

While on the surface this was an unfortunate incident and centralizing IT systems seems cost effective, that may in fact be way off base. If you think of centralizing data that will simply be viewed by users, like a personal health record (PHR), this makes sense. However, if you use a different analogy and realize that hospitals are very similar to factories, and hospital information systems are interfaced to laboratory equipment, radiology x-ray and MRI systems, pharmacy Rx dispensing units, bed control, and food handling systems this makes no sense.

Patient care at a hospital is handled in a very systematic way, with patients moving down a production line with specialized components put in place to serve the needs of the patient and healthcare provider - much like a healthcare 'factory'.

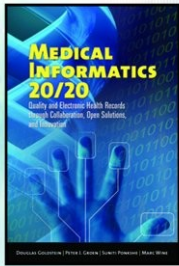
Ford or GM would not centralize the operation of its information systems and equipment located in a factory that make up the line used to produce and/or care for their product - cars. Similarly, centralizing a hospital system being used in the minute to minute care of a patient as they move through the hospital makes no sense.

You can centralize a PHR or EHR data repositories to view data, but not a heavy duty industrial automated system being used in patient care.

Finally, the VA Office of Information & Technology (OIT) has begun to disengage from its health IT partnering activities with the larger 'open' Vista community that has grown quite large. This unfortunately leads to an inability of the VA and the federal government to tap into the knowledge and development resources that community is willing to make freely available to the VA. Given the continual change to healthcare and health IT systems, this is a potentially great loss. It slows down innovation, ability to rapidly change, increases costs, and harms efforts to help the country to move towards interoperable EHR systems and health information exchange (HIE) networks.

If I could think of four strategies I would think the VA would absolutely choose to avoid, the new OIT management team has chosen to pursue all four.

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Medical Informatics 20/20

Quality and Electronic Health Records through Collaboration, Open Solutions, and Innovation

Douglas Goldstein; Peter Groen, MPA;
Suniti Ponshe; and Marc Wine, MHA

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or. Over that period of time Groen played a critical role in both the development and implementation of Vista® in the VA. Groen had operational responsibility for some of the major IT improvements at the VA, including the deployment of its network infrastructure, as well as the roll out of Vista's Computerized Patient Record System (CPRS) to all the VA facilities across the country. Groen retired just a couple of years ago from the VA as deputy CIO and Director of the Health IT Sharing Office.

Drawing upon his experience at the VA, Groen recently co-authored the book *Medical Informatics 20/20: Quality and Electronic Health Records through Collaboration, Open Solutions, and Innovation*. The book has been a quick seller and within a short time after its publication it had already been adopted as a standard textbook for Healthcare IT courses at a large number of Universities.

In contrast to this kind of experience, virtually not a single person in a position of leadership in the new VA IT office has any experience with Vista® or running an IT shop at a VA medical facility.

Groen's piece was followed a few days later by strongly-worded blog written by Scott Shreeve. Shreeve co-founded Medsphere with his brother Steve. They founded the company specifically to take Vista® out of the VA, adapt and improve it for use in the private sector and install it in private hospitals.

Medsphere has been very successful and has done what many consulting firms, including Gartner, claimed would be impossible—they has successfully deployed OpenVista at several private and State hospitals.

In his post Shreeve has a detailed discussion of the background that led to the VA's decision and warns “I fear this is the first amputation in a long and steady surgical removal of Vista® from the VA. Piece by piece, subsystem by subsystem, the VA appears to be looking to take a best of breed approach. All the beautiful and inherent advantages of a single, integrated software solu-

tion get thrown out the window as a patchwork of best of breed solutions gets thrown into the mix.”

Shreeve also raises a very important point. The laboratory module in Vista® that Cerner is going to try to replace was written over 25 years ago and has not seen any updates by the VA in ten years. It clearly needs to be replaced. The question is, do you build a new one that is fully compatible and integrated with Vista®? Or, do you just go and purchase a commercial one?

Gordon Moreshead, the former Chief Architect of Vista®, had some very interesting background to this debate in the HardHats list. In a Nov. 7 post to the list, he presents the following history:

“They currently have a lab system that was built in the '80's by internal developers in the development center in SLC which I managed at the time. For a little history, Cameron Schlehber and Wally Fort were the primary developers with contributions from Ron Guinsburg for A[natomic] P[athology] and Blood Bank. Though totally untrue, VA was at one time accused by Sunquest of copying their lab system. The two were very much alike in the early days because the same design methods were used and design decisions were made at virtually the same time with the same architecture in mind and with the same limitations on disk space costs, etc.”

According to Moreshead, “It has needed modernization for the last ten years or so. This was especially true in the areas of file structures and user interfaces. General overall functionality was always quite good although VA minimized its efforts to maintain it with the changing needs of modern laboratories. It must not be too bad in that it has served the VA for nearly 25 years with minimal updating for the last 10 to 15 years or so.”

Moreshead then states “It would be a major project to modernize it, but it would have cost far less to do so than to do what they are doing now.” Moreshead adds that “In terms of life cycle costs, I suspect that a re-write would have been less costly to do and maintain than to go commercial.” He notes that “Back in the late '80's, after implementation nationally, I estimated sunk costs at less than 10 million for the development and implementation across the entire VA.” “Not too bad for the taxpayer bang for the buck,” Moreshead concludes.

In a follow up disclaimer Moreshead warns that he retired from the VA over 10 years ago so his knowledge of these matters is dated. At the same time, what he had to say, particularly in terms of the cost savings of developing in-house has been corroborated by every single Vista® expert interviewed by Vista® & Open Healthcare News for this article.

The life-cycle costs of building software at the VA have been substantially lower by building in-house as opposed to outsourcing. This is a point that the Government Accounting Office (GAO) and others making recommendations regarding the future of Vista® completely miss. It may seem cheap to just write an initial \$40 million check to Cerner for the lab package. Yet, the real question is how much is this going to actually cost over the next 10, 20, or 30 years. Once that calculation is made, then it becomes clear that rewriting the laboratory package in-house, as well as others that need to be re-

written, such as the pharmacy module, would be far more economical as well as efficient than to purchase a closed source proprietary package.

The next question is, will it even work? The jury is still out whether the Cerner package will actually even work with Vista®. Integrating PathNet into Vista® is going to be a very complex and difficult job.

As we have seen from the earlier commentary in this issue regarding [Picis](#) software, there are all kinds of packages that can be integrated with Vista® to enhance the capabilities of the application. DSS, Inc. for example has built a solid business developing a whole array of add-on components and modules to Vista® such as Dental health and Mental Health Treatment Planner. These complement and enhance Vista®.

It is a good thing for Vista® to have an architecture that allows for Vista® to operate as a “hub” or a “bus” to applications including commercial applications. It gives users the freedom to pick and choose what particular module or enhancement they want to use. This becomes a major factor particularly in the private sector where Vista® has to integrate with multiple legacy applications.

The difficulty with Cerner's PathLab is that it would be replacing a “core” module. There are so many other modules in Vista® that are dependent on the laboratory module that it will be exceedingly complex to build all the interfaces.

At the same time, if the VA succeeds in this endeavor, it may result in a qualitative improvement to Vista®.

Downstream Effects

As readers of this newsletter are well acquainted, Vista® has moved far beyond the VA and has now been adopted all over the United States and the rest of the world as the best application to run healthcare establishments, from hospitals to national healthcare systems. All of these Vista® adopters are going to be adversely affected by the reorganization, a factor that was not taken into account at all by Congress.

This is not a minor issue. There are more than a dozen States in the U.S. either planning to implement Vista® or carrying state-wide implementations in State hospitals and clinics. Likewise for more than 30 countries around the world. Mexico, for example, now has over 60 hospitals running Vista® and they are planning to implement it in hundreds more. In the State of West Virginia Medsphere is close to finishing implementation in 7 State hospitals. In addition, RPMS, the Indian Health Services' version of Vista®, has been implemented in 20 clinics. Any actions taken by the VA in regards to Vista® have an enormous impact outside of the VA.

Joseph DalMolin, [WorldVista's](#) Vice President of Business Development, wrote eloquently about the downstream effects in a series of posts to the HardHats mailing list as well as other mailing lists and at [LinuxMedNews](#). DalMolin pointed out that key to the success of Vista® outside of the VA is that the software is released as public domain. It is free to be used by all the people that actually paid for it, which is U.S. taxpayers. Eliminating a core module that is critical to the functioning of Vista® and replacing it with a closed source com-

mercial package places a huge obstacle to the use of Vista® outside of the VA.

On a Nov. 8 post, DalMolin lays out the number one reason against the Cerner deal. He says “Reason #1: Introduction of a major proprietary component in Vista® will seriously hamper the trickle down application of affordable, clinically proven EHR software to the underserved and uninsured population. Given that affordability and sustainability of software will continue to be a major stumbling block to leveraging HIT in health systems, integrating proprietary components in public domain Vista® will make the software unaffordable and compound the already severe cost and quality challenges facing those serving the underserved and uninsured and exacerbate the regional disparities.”

Ignoring the Community?

The other major mistake made by Congress, and one that continues to be made by the new IT leadership of the VA is to ignore the Vista® community. This is a vibrant and growing community. Active participants include some of the people that actually built Vista® and were behind the transformation of the VA. In addition, one finds here all the people that have figured out how to implement Vista® in the private sector.

This community represents one of the most valuable resources for Congress and the VA leadership when it comes to a successful healthcare IT strategy.

When Dr. Robert Kolodner was acting CIO of the VHA and later the Chief Healthcare Informatics Officer he had an open door policy. He was always open for discussion and would regularly meet with members of the Vista® community in his offices. In addition, he would regularly attend meetings of the [WorldVista](#) organization as well as have senior staff members also attend and participate.

Dr. Kolodner met regularly with the companies doing Vista® implementations in the private sector to find out details of the deployments and also went to visit the sites and see for himself. After the Vista Software Alliance (VSA) was created Dr. Kolodner set aside a regular time at the end of the month to meet with VSA and Vista® community members.

As one of the founders of the VSA, I participated in these meetings and conference calls. They were a very productive and a valuable exchange of news and ideas for all parties. Dr. Kolodner was very forthcoming with some of the future plans for Vista development and willing to discuss with the community. This practice, unfortunately, was not continued by his successors when Dr. Kolodner left the VA to become the National Coordinator for Health Information Technology (Health IT Czar), reporting to the Secretary of HHS Michael Leavitt.

The present VA IT leadership has not opened lines of communication with the Vista® community. The VA is not even sending official representatives anymore to Vista® community meetings. At the same time there are some open doors at lower levels. These include the efforts on the part of some teams in the VA to work with the community. One of the issues that was resolved through collaboration, for example, was the issue of

making Vista® patches (updates to the public domain version of Vista®) available to the community on a timely basis.

If Congress and the VA wanted to know what the future of Vista® should be they ought to be seeking the knowledge and advice of the very people that are implementing in the private sector. Vista® is successfully competing head on against the existing products in the market, including Cerner and McKesson.

The increasing number of installations of Vista® in the private sector demonstrate its qualities and capabilities. At the same time Vista® has required modifications and enhancements to compete. Companies in the Vista® market have invested in excess of \$100 million collectively building their organizations and adapting and enhancing Vista® for use outside of the VA.

These are not minor players. Some of the companies promoting and implementing Vista® or the infrastructure to support it, in the private sector, States, and foreign countries include Hewlett Packard, Perot Systems, [InterSystems](#), and [Fidelity](#), as well as Novell on the infrastructure side with the Linux operating system, to mention a few. In addition there is a host of smaller companies and startups that are developing innovations to Vista® and gaining market share aggressively. These include Medsphere, DSS, Mele, Informatix, Blue Cliff, [CAV Systems](#) from Israel, as well as many others.

Besides the commercial entities, there are hundreds of individuals, many retired from the VA, who actively contribute their time and money to the community.

It would stand to reason that before coming up with a Vista® development strategy, Congress and the VA would have consulted first with the very people that are completely aware of the strengths and weaknesses of Vista® in the private sector and actually successfully deploying it outside of the VA.

The VA had already sought the advice of the community as a whole. Peter Groen, who retired from the VA several years ago and is now a professor at Shepherd University in Shepherdstown, WV, hosted a VSA conference at the University, April 20-21, 2006. The purpose of the conference was for the Vista® community to discuss the future direction of Vista® and the community as well as the opportunity to meet and discuss with leaders from the the VA, IHS and other Federal agencies.

Although Dr. Kolodner wanted to attend the Shepherd University conference the short notice and scheduling conflicts prevented him from doing so. Instead he sent Linda Fischetti, then head of the Health IT Sharing office as his personal representative. All the leading companies implementing Vista® in the private sector and all the board members of [WorldVista](#) were present. In addition Capt. James Garvey, Deputy CIO of the Indian Health Service as well as Dr. Stanley M. Saiki, Director of the Pacific Telehealth and Technology Hui also participated.

As noted earlier one of the core points of discussion at the conference was the future of Vista®. During the afternoon session, which yours truly chaired, there was a heated exchange between the participants and Linda Fischetti regarding the VA's so-called "Modernization" plan for Vista®. The consensus was that the "moderniza-

Box 7—The Promise of Open Technology Development by Roger A. Maduro

An alternative software development approach is emerging at DoD and the Military Health Service (MHS) that may solve the problems with AHLTA/CHCS and perhaps finally lead to a close working relationship between the VA and DoD. The emergence of this new model is taking place under the leadership of [Sue Payton](#), Assistant Secretary of the Air Force for Acquisition and one of the most aggressive and effective reformers that DoD has seen in decades.

As *Vista & Open Healthcare News* documented in previous issues, Secretary Payton commissions a study and report on an alternative approach to software development. This new approach is necessitated by the astounding failure rate for out-sourced software development projects contracted out by DoD. The report, titled [Open Technology Development: Roadmap Plan](#), was released in June 2006. This is a brilliant paper that has a clear analysis of the shortcomings of the outsourcing model and proposes an open source collaborative development model instead.

The [Open Source Software Institute](#) web site features several excellent articles on the report and the policies it proposes. A close read of the report actually shows that what is being proposed is for all practical purposes the Vista software development model.

More recently, The *DoD Software Tech* journal dedicated an [entire issue](#) to open technology and open source.

The good news for the Military Health System is that many of their top leaders—and they are as smart and as committed to their patients as anyone in the VA—are now looking at open source collaborative models. For over a year now there has been a major effort at MHS to implement the recommendations of the OTD Roadmap and move towards an open source development model.

This was a major topic of discussion at last year's [MCIM 2007](#) workshop in Saint Louis, Missouri. The conference had three tracks—open source in clinical research, in healthcare in general, and how the Military Health System could leverage open source development methodologies.

tion" plan was not a good idea, and they expressed this in no uncertain terms to Fischetti. One of the major elements of this plan was singled out for criticism. That was the idea that Vista® should be migrated from the M language ([InterSystems Cache](#) in the case of the VA) to a new platform based on Oracle's database technology.

Interestingly enough, this "modernization" plan was also criticized by Congress but for different reasons. Congress thought the VA was moving too slowly and this belief was one of the factors behind the reorganization. However, the Vista® community came up with a different plan than Congress.

The members of the community expressed the belief that Vista® did not need the radical overhaul of the modernization plan. It works and it's the best solution for small and mid-sized hospitals in the private sector! The discussion centered around the idea what Vista® needed was continued organic improvement to the existing modules using the old fashioned tried and true Vista® development methodology that had been used for the previous 30 years.

In addition the community members called for an effort to develop a web-browser based thin client to replace the CPRS GUI for Vista®.

The third major point of the discussion was the need for a code-repository organization so that the VA and

private sector companies, as well as adopters, could collaborate for the continuing development of Vista®. In addition such a code-repository organization would include the creation of mechanisms that would allow the VA to accept improvements and enhancements created for Vista® in the private sector.

What is to be done?

As we wrap up this special report, the question remains how so solve the crisis facing the VA. Our belief is that the solution has been there all along in the form of a federated model and any of a large number of highly qualified individuals that have testified in Congress over the past several years are more than capable of carrying it out.

What we would like to discuss is the option for the continuing development and improvement to Vista® that has emerged over just the past couple of years. That is the core repository concept that was discussed at the Shepherd University conference.

The best part of this discussion is that there little that we need to add to it as there is already a very clear and well-thought out presentation of this topic. This presentation comes from Dr. Kenneth Kizer who as we have seen was the “change agent” for the extraordinary transformation of the VA medical system in the 1990's from its [“Born on the Fourth of July”](#) days to what is now recognized as the finest healthcare system in the United States.

Dr. Kizer's proposal is detailed in testimony that he presented to Congress on April 6, 2006 at a hearing of

the Subcommittee on Health of the House Committee on Ways and Means, During Dr. Kizer's testimony he laid out in detail why Congress should pursue an open source strategy not only for Vista®, but for all software that the government purchases. He stated:

I recommend Congress do as some states and other countries have done and legislate that open source software must be first considered when federal funds are used to purchase new software. If there is no appropriate open source solution available, then one could turn to proprietary options.

I am confident that the federal government would save billions of dollars in licensing fees alone over the next 10 years by preferentially pursuing open source solutions. The government would likely also realize substantial savings through collaborative public-private projects and increased software functionality while harnessing a robust stream of innovation in the future.

Dr. Kizer then went on to elaborate in detail the benefits of creating an open source ecosystem for Vista®. Some of the key points that Kizer made are excerpted in Box 9. The full text of his speech can be found in the background documentation section of the newsletter.

One of Dr. Kizer's recommendations is for Congress to allocate 5% of the development budget for Vista® “to create a public-private partnership whose purpose would be to promote the use of Vista by supporting the open source development of the Vista code...”

This is very much along the lines of the discussion that took place at the Shepherd University conference. One of the additional benefits that this approach would

Box 8—Ken Kizer—Open Source Strategy for Vista *Excerpts from Congressional Testimony, April 6, 2006.*

“In promoting the development of a national health care information infrastructure, we need not start at ground zero. The Congress should recognize that it has already invested billions of dollars in developing an electronic health record that currently operates the largest health care system in the nation.

“I urge the Committee to consider how it might capitalize on the sizeable public investment that already has been made in Vista....

...In the past two years, Vista has been successfully deployed in both the private sector and in health care facilities run by state governments.

...It is unfortunate that this successful product developed by the government with taxpayer dollars cannot be made more available to benefit community, rural and public hospitals. It is also unfortunate that improvements in Vista that have been made in the private sector in the past two years cannot be given back to benefit the VA.

To address these two issues, I urge the Committee to consider redirecting 5% of the funds annually appropriated to the VA for research and development of Vista for 5 years to create a public-private partnership whose purpose would be to promote the use of Vista by supporting the open source development of the Vista code, bi-directional sharing of enhancements, interfaces with proprietary systems (especially legacy back office systems), standards of interoperability where needed, and validation of improvements so that this public domain product could benefit both government and private health care providers.

At the end of 5 years, the partnership should be expected to be self-sufficient. Even before that time VA should be able to realize

substantial benefits from improvements to Vista that should obviate much of its need for software development funds to support Vista. This should result in much lower IT funding needs for the VA on an ongoing basis.

This relatively small initial investment should result in marked savings in the long term for VA and IHS.

Given the large number of physicians and other health care professionals already familiar with Vista as a result of their training at VA facilities, the large number of current VA and IHS users of Vista, and the nascent commercial community of Vista users, this public-private partnership could provide the formal structure needed to catalyze widespread adoption of an electronic health record.

Under this scenario, instead of VA being the sole developer of the Vista code, as is now the case, it would become a contributor to the code among a community of public and private users. In this scenario, everyone in the community would be collaborating and contributing to improving and enhancing the Vista code. This arrangement, as an open source project, would enable the VA to leverage its budget, increase collaboration with private sector adopters, and enable a community of users to coordinate their efforts around a common platform. In brief, everyone would benefit under this scenario.

This public-private partnership might be envisioned to function like the Eclipse Foundation currently does in advancing “the creation, evolution, promotion and support of the Eclipse Platform and to cultivate both an open source community and an ecosystem of complementary products, capabilities, and services.” *The Full text of Kizer's testimony to Congress is found in the background section of this issue of the newsletter.*



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have would be that the new VA IT leadership would have collaborative access to the entire VistA® community. This includes most of the original developers of VistA® who have now retired but continue active in the community. It's a wealth of know ledge and experience that the VA could draw upon as it moves forward.

Interestingly enough a clear opportunity for the VA and Congress to start working with the VistA® community is coming up in a few months. Shepherd University is again hosting a major VistA® conference. From June 26 through the 29th, 2008, Shepherd University will be hosting the 17th VistA Community Meeting. Organized by the [WorldVista](http://WorldVista.org) organization, this conference is already shaping up as the biggest VistA® community meeting to this date. It would be quite significant if the VA were to leverage this conference to establish new initiatives with the community and the private sector that would significantly benefit the VA itself and the veterans under its care.

Background

Diabetic VistA - The First Amputation

by Scott Shreeve, CrossOver Health Blog, Nov. 7, 2007

The following is a [reprint](#) of Scott Shreeve's Crossover Health blog of Nov. 7, 2007. Scott is the co-founder of Medsphere and has been one of the most articulate spokesmen for VistA and open source in healthcare. In the past year Scott has not only become a well-known and respected blogger, he has also become a major figure in the Health 2.0 movement.

Diabetes (dī-ă-bēt-ēz) n.

1. Diabetes mellitus is a condition in which the pancreas no longer produces enough insulin or when cells stop responding to the insulin that is produced

2. As a result, the glucose in the blood cannot be absorbed into the cells of the body.

3. The symptoms include frequent urination, lethargy, excessive thirst, and hunger.

4. The treatment includes changes in diet, oral medications, and in some cases, daily injections of insulin.

During my medical training, I had the opportunity to rotate through several VA facilities. The VA is an incredible place to train because of the varied types and degrees of disease you see within this unique patient population. More profound were the individual patients, these grizzled veterans of war who have served their country faithfully and heroically. They were typically very grateful for our services as students and residents, and were the most complicit but also the least compliant of patients.

Diabetes was rampant within the veteran community, and I was able to see the literal ravages of the disease during training. Diabetes is an insidious, unrelenting disease that takes its victim piece by piece. While the blood stream is awash in glucose, there is no mechanism to get the vital energy source into the cells creating a Tantalus-like starvation. Given that the effects are silent and painless over years, many diabetics remain untreated until eventually the vascular strangulation leads to necrosis of tissue. The signs were pathoneumonic – the black, leathery, and advancing patches of dead tissue. The only treatment for this is amputation. Starting from the toes and advancing up to the knees and beyond, diabetes destroyed its victim piece by piece, and it usually starts with a single toe amputation.

In an unprecedented announcement yesterday, Cerner has signed a 9-year deal with the VA to replace the VistA Laboratory Information System (LIS) at 150 hospitals and 800 clinics. This is both a highly provocative

and highly concerning announcement— a double edged sword with deep cutting implications. Which side of the sword you will feel will depend on your perspective.

Having sold VistA commercially for several years, the LIS was certainly one of the challenges we needed to overcome in every sale. The VistA LIS is actually one of the first parts of the system that was created in the early 80's. Several key figures, including George Timson, were involved in writing the code, which unbelievably has changed very little since that time. I distinctly remember sitting with George during one of our early implementations which required some modifications to the code, and him remarking along with one of his famous Mozart laden profanities, "this is the same code I wrote 20 years ago." (As an aside - It is actually quite amazing that code written 20 years ago could remain serviceable given all the dynamic changes in requirements, features, and functionality over that time frame. In fact, can you think of other software programs written that long ago that are as widely distributed and remain functional in today's computing environment?)

So what happened? How could the VA allow a critical, integral part of VistA languish for more than a decade? What are the implications of the decision to wholesale components of VistA to proprietary software vendors like Cerner? What does this mean to the other aging parts of the system (Pharmacy, Radiology, etc) as well as some of the new, still functional innovations (BCMA, CPRS, etc)?

The "good news" is that this might lead to an entirely new frontier of integration with leading commercial software. Since Cerner is the most popular LIS in the market (and a very good one by the way), many hospitals have Cerner already installed and so this could potential decrease the impedance of VistA sales. In addition, perhaps the collective weight of the VA and Cerner working to integrate the public domain VistA code with the proprietary Cerner code will yield new interoperability magic.

Unfortunately, I doubt it.

I fear this is the first amputation in a long and steady surgical removal of VistA from the VA. Piece by piece, subsystem by subsystem, the VA appears to be looking to take a best of breed approach. All the beautiful and inherent advantages of a single, integrated software solution get thrown out the window as a patchwork of best of breed solutions gets thrown into the mix.

For Cerner, this is huge. No only is it a huge land grab, but it is more than a critical beach head for wholesale replacement of VistA. Cerner now is positioned to wipe out VistA Radiology, VistA Pharmacy, Vista Registration, and ultimately the entire VistA clinical suite. Not only is Joe Public going to lose his several billion dollar investment in the largest and most successful implementation EHR to date, but he is going to be paying even more in the future for all those Cerner licenses. Double edged sword, indeed!

This leaves me with two questions:

First, what could have been? Had the VA taken a leadership position on this, by developing the software in a

collaborative, open, and transparent way they could have saved the taxpayer and themselves literally billions of dollars. They would have posted their requirements, they would have engaged both internal and paid external developers to continually enhance and build the LIS and other VistA subsystems. Had the VA involved the DOD and the IHS, and had the various departments sought to leverage their "collective intelligence" (and collective budgets), they could have developed a unified framework which would have allowed the parties to "reduce, reuse, and recycle" software across departmental lines while still address the individual and unique requirements of each. It is ironic how this proprietary philosophy even kills departments required to operate in the public domain.

Second, is there an open source community that can respond to this? Is there developer capacity, talent, and organization within the community that can take the soon to be defunct laboratory code and build from it? Are there financial or any other type of incentives or rewards out there for anyone to actually do this? Is there some customer organization or corporate entity out there who believes they can take a "good enough" solution and actually make it market competitive?

Re-reading the definition of diabetes above, I am struck by what an apt metaphor it is to describe this recent news. Given the prior possibilities for such a different future, it is painful to watch a Diabetic VistA getting its first toe amputation.

Background

Dr. Ken Kizer — Proposal to Congress for an Open Source Strategy for Healthcare

Below is the full text of the [testimony](#) presented by Dr. Ken Kizer before the Subcommittee on Health of the House Committee on Ways and Means on April 6, 2006.

Good afternoon. I am pleased to appear before you today to comment on how Congress might accelerate development of a national health care information infrastructure and speed up adoption of electronic health records and to do so at a substantially lower cost than generally thought to be necessary.

At the outset, I should acknowledge that I am cognizant of the large amount of testimony that this Committee has heard over the past two years about health care information technology and ways to improve the quality and safety of health care. I know that I have contributed testimony on at least two previous occasions (March 15, 2005 and June 17, 2004). Being mindful of this, my background comments are intentionally very brief.

Background

In the way of background, I would again note that few technological advances have held so much potential to improve health care, yet has so far realized so little actual impact on everyday patient care, as has electronic information management.

This is especially ironic when one considers that modern health care is the most information-intense enterprise that human beings have ever engaged in and that many of health care's diagnostic and treatment technologies are models of electronic sophistication. Unfortunately, the methods of maintaining and moving patient-related information along the continuum of care have remained much the same for the past 100 years.

The absence of a national health care information infrastructure to support coordinated, continuous and comprehensive, patient-centered health care contributes to an unacceptably high rate of medical errors; hinders efforts to measure health care performance and improve known deficiencies of quality; and impedes improvements in efficiency.

I believe that the single most important thing that can be done today to improve the quality and safety of health care and to reduce soaring health care costs is to widely adopt electronic health records.

An electronic health record (EHR) should be viewed for hospitals, clinics and other health care organizations the way that enterprise resource planning (ERP) systems are used in other industries. In brief, the electronic health record is a mission critical enabler of consistent and predictable high performance.

Unfortunately, the high cost of most of the electronic health records on the market today make them unaffordable for a large majority of hospitals and other health care providers.

Being mindful of your deep immersion in these issues, I will forgo any further comments on why a national health care information infrastructure is needed and what are the benefits of widespread adoption of electronic health records. I know that you are familiar with the reasons why we need to proceed towards these goals with a sense of urgency.

I would like to focus the remainder of my comments on three interrelated but stand-alone recommendations for how Congress could accelerate adoption of electronic health records at a cost substantially less than usually cited in this regard.

Make Selection of Open Source Software the Default Mode for Federal Funds

For the past twenty years open source software has been building momentum in the technical cultures that built the Internet and the World Wide Web. Open source has now established its viability in the commercial sector, and a major shift toward open source software is underway throughout the world.

Open source software is less well developed in health care than for some other enterprises, but open source software solutions for health care are now rapidly evolving.

In this vein, I urge the Committee to consider making open source software the first consideration in selecting any new software purchased with federal funds. This should be the case across the federal government – for health care and non-health care federal procurement alike. This requirement should apply to software purchases made by all federal agencies and purchases made

by state and local governments and private parties using federal funds (including research funds).

Even in the absence of federal funding per se, I believe that the federal government's policy should be to support and utilize open source software as the preferred option whenever possible because of its many advantages over proprietary software.

When using the term open source software I refer to software that is nonproprietary, available at no or minimal cost, allows different IT systems to operate compatibly, and facilitates collaboration in order to improve and enhance the freely accessible source code.

Open source software had its genesis in the 1970s with the creation of Berkeley Software Distribution, which sought an alternative to AT&T's Unix operating system. In the 1980s and 1990s the key network protocols underlying the Internet were developed using open source methods.[1] A particularly critical milestone in the history of open source was the creation of the Linux operating system in the 1990s. Linux demonstrated that open source development methodologies could deliver commercially viable technology to the market.

In recent years, a number of non-health care companies (e.g., Red Hat, MySQL, and JBoss) have demonstrated that open source is not only commercially viable but may well become the dominant model for creating software. This likelihood is enhanced by the support shown for open source by leading technology companies such as IBM, Hewlett Packard, Dell, Sun Microsystems and Intel.

Open source software differs from proprietary software in several ways. For example, while competition and the free market are very much a part of open source, the competition occurs at increasingly higher levels of value add. Businesses in the open source arena do not derive revenue from licensing fees, as is the case with proprietary software, but instead generate revenue from ancillary products and services that are tailored to the needs of the individual customer. Companies compete, and differentiate themselves, on the quality of their value add, whether that be in service delivery, product enhancements or other ways important to the customer, and not on the proprietary value of the software itself.

In open source, the basic software is viewed as a commodity and its development is collaborative and shared by the community of users. Because contributions to enhancing the code come from many sources in an environment of collaboration, innovation is more rapid. Likewise, because of the large number of ready testers, evaluation and debugging of new developments is more rapid than with conventional software. Finally, open source gives users of the software much more flexibility because they can obtain software and services from many sources, not just one vendor. Indeed, open source is much more consistent with a true free market approach than proprietary products that entail the infamous "vendor lock."

The health care industry is just now being introduced to this wave of open source innovation, with several new corporate entrants over the last year promising competitive EHS functionality at significant cost savings.

I recommend Congress do as some states and other countries have done and legislate that open source software must be first considered when federal funds are used to purchase new software. If there is no appropriate open source solution available, then one could turn to proprietary options.

I am confident that the federal government would save billions of dollars in licensing fees alone over the next 10 years by preferentially pursuing open source solutions. The government would likely also realize substantial savings through collaborative public-private projects and increased software functionality while harnessing a robust stream of innovation in the future.

Leverage the Federal Government's Existing Investment in Health Care IT

In promoting the development of a national health care information infrastructure, we need not start at ground zero. The Congress should recognize that it has already invested billions of dollars in developing an electronic health record that currently operates the largest health care system in the nation.

I urge the Committee to consider how it might capitalize on the sizable public investment that already has been made in VistA, the electronic health record used by the Department of Veterans Affairs and increasingly also by the Indian Health Service. A variant of VistA is also used by Department of Defense health care facilities.

The Veterans Health Administration began developing an EHR in the early 1980s when few clinical options were commercially available. Over the ensuing years, several billion dollars of federal funds were spent developing the VA's electronic health record, which was named VistA in 1996.

Today, VistA is the most widely used electronic health record in the world, as judged by the number of facilities and health care providers using it on a daily basis. It is also the most successful electronic health record in so far as its use has been linked to dramatic improvements in the quality and safety of care, as documented in numerous peer-reviewed articles and other reports in the medical literature.

In the past two years, VistA has been successfully deployed in both the private sector and in health care facilities run by state governments.

As the person who implemented VistA in the VA in the 1990s, I will certainly concede that VistA is not perfect and would benefit from improvement in some areas, just as would all of the proprietary systems currently available. However, even with its limitations, VistA is markedly better than what exists in most hospitals today.

It is unfortunate that this successful product developed by the government with taxpayer dollars cannot be made more available to benefit community, rural and public hospitals. It is also unfortunate that improvements in VistA that have been made in the private sector in the past two years cannot be given back to benefit the VA.

To address these two issues, I urge the Committee to consider redirecting 5% of the funds annually appropriated to the VA for research and development of VistA for

5 years to create a public-private partnership whose purpose would be to promote the use of VistA by supporting the open source development of the VistA code, bi-directional sharing of enhancements, interfaces with proprietary systems (especially legacy back office systems), standards of interoperability where needed, and validation of improvements so that this public domain product could benefit both government and private health care providers.

At the end of 5 years, the partnership should be expected to be self-sufficient. Even before that time VA should be able to realize substantial benefits from improvements to VistA that should obviate much of its need for software development funds to support VistA. This should result in much lower IT funding needs for the VA on an ongoing basis.

This relatively small initial investment should result in marked savings in the long term for VA and IHS.

Given the large number of physicians and other health care professionals already familiar with VistA as a result of their training at VA facilities, the large number of current VA and IHS users of VistA, and the nascent commercial community of VistA users, this public-private partnership could provide the formal structure needed to catalyze widespread adoption of an electronic health record.

Under this scenario, instead of VA being the sole developer of the VistA code, as is now the case, it would become a contributor to the code among a community of public and private users. In this scenario, everyone in the community would be collaborating and contributing to improving and enhancing the VistA code. This arrangement, as an open source project, would enable the VA to leverage its budget, increase collaboration with private sector adopters, and enable a community of users to coordinate their efforts around a common platform. In brief, everyone would benefit under this scenario.

This public-private partnership might be envisioned to function like the Eclipse Foundation currently does in advancing "the creation, evolution, promotion and support of the Eclipse Platform and to cultivate both an open source community and an ecosystem of complementary products, capabilities, and services."^[2] Eclipse is a software platform that IBM released into open source in 2004. Other conceptually similar open source collaborative models exist, including the highly successful Apache, Mozilla, OpenOffice and MySQL projects.

Make use of an EHR a Condition of Participation for Medicare

As was seen with hospital reporting on quality metrics a couple years ago, participation in the Medicare program, and even very small changes in Medicare payment rates, can serve as a powerful catalyst to change health care provider behavior.

In this vein, I urge Congress to set a date after which use of an electronic health record will be a condition of participation for health care providers who wish to participate in the Medicare program. Recognizing the need for an adequate lead time before such a requirement went into effect, I would suggest a two phase process.

To be generous, the year 2015 could be set as the year when use of an EHR would become a Medicare condition of participation. However, to encourage more rapid adoption of electronic health records, beginning at an earlier date – say 2011 – providers not using an EHR would receive an incrementally lower Medicare payment rate than those who used an EHR. Each year until 2015, the difference in rates would increase.

If such an approach were taken, then Congress would also need to specify what would qualify as an electronic health record. Without getting into elaborate detail here, I would suggest that the core set of attributes necessary to qualify as an EHR include the following:

1. Have functionality across the continuum of care;
2. Be scalable across the continuum of care;
3. Have integrated applications that all access a common data base;
4. Have a comprehensive suite of application functionality;
5. Incorporates standards of coding and interoperability;
6. Is platform (i.e., hardware and operating system) neutral;
7. Has a demonstrated ability to improve quality, safety and efficiency; and
8. Incorporates the national consensus standards for healthcare performance measurement endorsed by the National Quality Forum.

The basic attributes of an integrated electronic health record listed above would no doubt be the subject of considerable debate, and I would urge the Committee to keep them at this general level of specificity – specific enough so that they are meaningful but not so specific that they are prescriptive or anti-competitive.

Conclusion

Madam Chairwoman, as a final comment this afternoon I would again note that I believe the single most important thing that can be done to improve the quality and safety of health care today, and to concomitantly constrain the inexorable rise of health care costs, is to widely implement affordable electronic health records. However, the piece of the health care IT solution that has not been previously adequately considered is open source software.

I believe that the future of health care IT lies in open source solutions, and Congress could do several things, as noted above, to promote the development and adoption of these highly cost-effective alternatives to the currently available proprietary products.

That concludes my testimony. I would be pleased to answer any questions that the Committee might have.

[1] Forrester Research. Open Source Software: A Primer for Health Care Leaders. California Healthcare Foundation. Oakland, California. 2006.

[2] Eclipse Foundation Bylaws. www.eclipse.org

Background

Dr. Paul Tibbits – Testimony On VA Reorganization, Sept. 26, 2007.

These are excerpts of the [testimony](#) presented to the House Committee on Veterans Affairs on Sept. 26, 2007. Dr. Tibbits is Deputy Chief Information Officer for Development, Office of Information and Technology, U.S. Department of Veterans Affairs.

Thank you, Mr. Chairman. I would like to thank you for the opportunity to testify on the realignment progress in the Office of Information & Technology (OIT) and to share with you the progress made in VA as a result of the centralization of IT development activities.

Joining me on this panel is Dr. Ben J. Davoren, Director Clinical Informatics, from our San Francisco Medical Center.

This Committee has demonstrated great support for and interest in IT in the VA, and we genuinely appreciate it.

You have just heard testimony from Assistant Secretary Howard regarding the GAO report on our realignment progress and the need for more work to be done to achieve successful transition from a decentralized to a centralized organization. While General Howard focused on the information protection aspects of the realignment, I would like to share with you our progress in establishing an IT governance plan, strengthening development process improvement efforts, and fostering innovation.

You have also heard General Howard refer to his seven (7) priorities and how they are guiding the realignment process.

I would like to talk more about those priorities that have special significance to the Office of Enterprise Development. They include:

- (1) establishing a well-led, high-performing, IT organization that delivers responsive IT support to the three Administrations and Central Office staff sections;
- (2) standardizing IT infrastructure and IT business processes throughout VA;
- (3) establishing programs that make VA's IT system more interoperable and compatible;
- (4) effectively managing the VA IT appropriation to ensure sustainment and modernization of our IT infrastructure and more focused application development to meet increasing and changing requirements of our business units.

Background

John Glaser, PhD-On the VA's Health Care Information Technology Challenges

These are excerpts of the testimony given by Dr. John Glaser, Before the Committee on Veterans' Affairs of the United States Senate on September 19, 2007. Dr. Glaser

is Vice-President and Chief Information Officer, Partners Healthcare, Boston, Massachusetts.

Failure to achieve strong alignment can pose significant problems for the organization. Information technology projects may be well managed and the information technology group may be very efficient but, without alignment, they are at great risk that their work is not addressing the priority needs of the organization and the delivered applications do not reflect the needs of the staff who do the organization's work on a daily basis.

The excellence that characterizes the VA health care information systems was a result of exceptional alignment. The VA Health Administration leadership had direct authority over the information technology strategy, resource allocation and management of results. The physicians and nurses who deliver care to our veterans had direct access to the analysts and programmers who created the applications; indeed the analysts and developers viewed these providers as their true bosses.

I am concerned that recent changes in the VA information technology organization structure will damage alignment. Steps that centralize authority within the VA in a manner that reduces the direct management of information technology by those who are accountable for the delivery of medical care and are most knowledgeable about the needs of the healthcare system runs a very significant risk of undermining the progress that has been made.

These concerns acknowledge the value of a central VA information technology group in areas such as developing technology standards and providing non-healthcare specific financial systems. However, too much centralization will damage alignment and diminish the excellence of medical care.

Full testimony [here](#).

Background

Dr. J. Ben Davoren, MD, PhD—On the VA's IT Realignment.

Below are excerpts of the testimony given by Dr. J. Ben Davoren, MD, PhD at the House Committee on Veterans Affairs on Sept. 26, 2007. Dr. Davoren is the Director of Clinical Informatics, San Francisco VA Medical Center, U.S. Department of Veterans Affairs.

...In response to the Secretary's proposals for IT realignment, I believe that employees at some medical centers expressed a number of concerns about the details of the plan. In particular, I believe they felt that the regionalization of IT resources would create new points of failure that could not be controlled by the sites experiencing the impact, and that the system redundancy required to prevent this was never listed as a prerequisite to centralization of critical patient care IT resources. From my point of view as the Director of Clinical Informatics, it was clear to me that the focus of reorganization/realignment was on technical relationships and not on how the missions of VHA would be communicated to the new OI&T structure. For example, realignment success met-

rics were focused on Regional Data Processing Center (RDPC) deliverables rather than facility needs. Finally, key facility-based IT staff had been tightly integrated into local committees and planning groups as subject matter experts, but could no longer be tasked directly by the facility Director to participate, and had no clear OI&T-driven incentive to continue. Ultimately, the concern was that in trying to create a new structure in the name of "standardization", support would wane to a "lowest common denominator" for all facilities, no matter how diverse their actual needs were.

...The bad news is that centralization of physical IT resources to the RDPCs has directly led to more system downtime for individual medical centers than they have ever had before, resulting in hundreds of simultaneous threats to the safety of our veteran patients. In addition, it is my opinion that disagreements over whether new proposals for clinical application or device procurement are "IT" or "not-IT" has markedly delayed upgrading of aging systems and implementation of new systems for veterans' care.

Full testimony [here](#).

Background

Dr. Bryan D. Volpp, MD—On the Impact of the Systemwide Outage on VA hospitals.

Below are excerpts of the testimony submitted by Dr. Bryan D. Volpp, MD, to the House Committee on Veterans Affairs on Sept. 26, 2007. Dr. Volpp is Associate Chief of Staff, Clinical Informatics, U.S. Department of Veterans Affairs, VA Northern California Healthcare System.

This work to recover the integrity of the medical record will continue for many months since so much information was recorded on paper that day. When you consider that hundreds of screening exams for PTSD, depression, alcohol use, and smoking, and entry of educational interventions, records of outside results, discharge instructions and assessments are all now on paper and are not in a format that is easily found in the electronic record, the burden of this one failure will persist for a long time. This adds an additional load for the staff to have to pull up the paper records from that day and presents a risk that some important facts or results collected on that day will be missed at some point in the future. For example, consent forms done that day for future procedures will not be in the same location as our usual consent forms since these were done on paper and scanned into the record during recovery.

In summary, there were severe impacts to patient care, timeliness of care and the integrity of the medical record due to the disruption and these affects will persist for some period of time into the future. Mr. Chairman, this concludes my statement.

Full testimony [here](#).

News Clippings

The following section contains article "clippings" that we think would be of great interest to the reader. The news clippings contain some key quotes as well as the basic information including author, publication, and date. They should all have working links. The links may cease to work over time as publications tend to move articles around in their own web sites. All copyrights to the articles in this section belong to the original authors and publications.

Breaking News

Veterans Affairs Healthcare System No. 1

Dr. Tim Johnson, *ABC News*, Dec. 12, 2007

-How the Once-Maligned VA Healthcare System Becomes Best in Nation.

Socialized medicine may sound un-American, but in fact, it's exactly what we provide to our American heroes -- the more than 5 million armed forces veterans and their families. They get health care that the government both pays for and delivers. It's the Veterans Affairs Healthcare System, and according to health care experts such as Phil Longman -- it's become one of the best health care systems in the country.

So how did the once-maligned VA transform itself? "First and foremost, by pioneering electronic medical records," Longman said. "Which is a much bigger deal than it might sound." Experts generally agree that electronic records are absolutely essential to significant health care reform. However, only about 5 percent of the nation's hospitals now have them.

Full article [here](#)

ABC News Series Examines Role of Electronic Health Records in Improving the Veterans Affairs Health Care System

Kaiser Daily Health Policy Report, Dec 13, 2007

As part of a series on health care reform, ABC's "World News" on Tuesday reported on the Veterans Affairs health care system. According to "World News," the VA is a "prominent example of socialized medicine in America" (Gibson, "World News," ABC, 12/12).

Some health care experts believe that the VA has become "one of the best health care systems in the country" by increasing its use of health care information technology, "World News" reports. Phil Longman, a health care expert and author, said the VA improved care "[f]irst and foremost, by pioneering electronic medical records."

According to "World News," the VA's "life-long relationship with patients" gives it "a strong financial incentive to invest in technology that aids preventive medicine." The VA has fewer medical errors, more effective treatment, lower costs and higher patient satisfaction compared with private hospitals, "World News" reports. In addition, the VA spends about \$1,500 less per patient than Medicare, according to "World News" (Johnson, ABC.com, 12/12).

Full article [here](#).

No. 1 Book, and It Offers Solutions

David Leonhardt, *New York Times*, December 19, 2007

...Dr. Wennberg's story forms the backbone of "Overtreated," by Shannon Brownlee, which is my choice for the economics book of the year. This was another very good year for economics books....But I'm going with Ms. Brownlee's book because it's the best description I have yet read of a huge economic problem that we know how to solve -- but is so often misunderstood.

...The typical book about current affairs is better at describing problems than solutions. But there is a nice surprise at the end of "Overtreated." (If you find yourself wishing the book had fewer anecdotes, I'd suggest you skip to the end rather than putting it down.) In plain English, Ms. Brownlee lays out an agenda for reform that is usually confined to academic journals.

...models for reform are out there. Hospitals that don't use the fee-for-service model, like those run by the Veterans Health Administration, are already getting better results for less money. They closely track their performance -- that is, the health of their patients -- and motivate employees to improve it.

Full article [here](#).

Medsphere Completes EHR Deployment at Two West Virginia Hospitals Spanning Acute, Long-term, Behavioral Health & Clinic Settings

Press Release, Dec. 11, 2007

Medsphere Systems Corporation today announced the successful deployment of its OpenVista(R) electronic health record (EHR) platform at Welch Community Hospital and Mildred Mitchell-Bateman Hospital in West Virginia, two of seven state-operated hospitals that will be equipped with OpenVista under a contract to improve West Virginia's healthcare system. The implementations span acute, long-term, behavioral and clinic environments, with a single database enabling physicians to access patient data across all facilities.

Welch Community Hospital in the town of Welch is a 124-bed acute and long-term care facility that offers walk-in and emergency health services in the same facility. Bateman Hospital in Huntington is a 105-bed acute care psychiatric facility. Together with William R. Sharpe Jr. Hospital, a 150-bed acute care psychiatric facility in Weston that began using OpenVista earlier this year, the three facilities become the first in the state to use the

Medsphere platform to electronically record and retrieve patient information.

Full article [here](#).

Vecna Medical Releases QC EMR™, Open-Source Electronic Medical Record Solution

Press Release, July 16, 2007

Vecna Medical today announced the release of QC EMR™, an open-source electronic medical records system based on OpenVista. QC EMR™ joins the growing QC Works™ integrated suite of innovative technology solutions for the healthcare community, which also includes tools for automated infectious disease surveillance and patient self-service kiosks. QC EMR™ features the best of modern EMR systems, such as electronic order/entry (CPOE), appointments & scheduling, and secure provider messaging, together with all the benefits of open-source systems.

Full article [here](#).

Vista

A Victory for ICU Safety

Health Management Technology, July 2007

-The implementation of a critical care software system improves information management in the ICU of a VA healthcare network.

The sharing of patient data such as hospital admissions information, laboratory results, progress notes, and imaging and authentication (access/ verify) data throughout any healthcare facility is essential for maintaining the accuracy and efficiency of clinical care. A seamless flow of information is especially vital within the ICU, where seconds always count.

Among healthcare facilities of the Veterans Health Administration, the proprietary in-house Veterans Health Information Systems and Technology Architecture (Vista) and the VA Computerized Patient Record System (CPRS) cover approximately 80 percent of the documentation needs of clinical care. However, the typical VA hospital does not incorporate the ICU, anesthesia and post anesthesia care unit (PACU) into this integrated information.

VA healthcare providers within the California-based Sierra Pacific Network realized that to continue to be a comprehensive, integrated healthcare system characterized by exceptional accountability and healthcare value, they needed to address immediately all three of these issues. Together, they found a solution that integrated with Vista and met the documentation needs and CPRS coverage desired in the government's move towards paperless patient healthcare records.

Full article [here](#).

Upcoming Events

SCALE Second Annual Health Care Conference

Los Angeles, California

February 8, 2008

The Southern California Linux Expo is holding the second annual Demonstrating Open-Source Health Care Solutions (DOHCS). The event will have two tracks. The first track will focus on the technical aspects of operating in the complex environment of Health IT and the second track will focus on the business aspects, case studies, and Open-Source successes throughout health care as a whole.

TEPR 2008

Fort Lauderdale, Florida

May 19-21

This year's conference has an entire day of presentations on Vista and open source in healthcare.

OSHCA 2008/HISA/OpenMRS

Durban, South Africa

June 16-20, 2008

The 2008 Conference of the Open Source Healthcare Alliance (OSHCA) will take place in Durban, South Africa, in conjunction with HISA 2008, the biannual meeting of the South African Health Informatics Association (SAHIA) and the OpenMRS Implementers Meeting 2008.

17th Vista Community Meeting

Shepherd University, Shepherdstown, West Virginia

June 26-29, 2008

Organized by WorldVista, this conference is shaping up to be the biggest Vista community conference ever. Several major national figures are expected to address the conference and outline how Vista can be used to solve the healthcare crisis facing the nation.

Vista Leadership Conference

George Mason University, Fairfax Virginia

July 10-11, 2008

Solutions for the Future of Health IT.

EFMI STC2008

London, UK

September 9-11, 2008

This EFMI (European Federation for Medical Informatics) Special Topic Conference (STC) will be organized by members of the IMIA and EFMI Open Source Working Groups with a focus on Open Source in European Health Care.

The conference will explore the current and future issues related to open source in healthcare. In particular, there will be a focus on health records, ubiquitous computing, knowledge sharing, and current and future applications.

Veterans Health Administration Purchases Picis Anesthesia Software for Five Hospitals in Calif. and Nevada
Press Release

-Network expands use of Picis high-acuity care solutions; underscores Picis proven integration with the VA

WAKEFIELD, Mass.--(BUSINESS WIRE)--Picis, Inc., an established provider of high-acuity care information systems, today announced that VA Sierra Pacific Network, has purchased CareSuite™ Anesthesia Manager, Preop Manager and PACU Manager. The group of five medical centers in Northern Calif., and Nevada will implement Picis to automate anesthesia documentation and the recovery room process of all surgical cases, streamlining clinician workflow before, during and after surgery.

Full article [here](#).

Contract makes vendor the 'standard' for VA healthcare
Eric Wicklund, *Healthcare IT News*, Dec. 13, 2007

WAKEFIELD, MA - A newly announced contract with the New Mexico Veterans Affairs Health Care System is the latest in a line of West Coast-based VA customers for Picis. The Wakefield, Mass.-based provider of high-acuity care information systems announced Wednesday that it had secured a contract with NMVACHS for its Picis CareSuite for perioperative automation.

The New Mexico system, which includes the VA Medical Center in Albuquerque, selected CareSuite OR Manager to automate clinical and administrative functions including surgical scheduling, perioperative documentation, supply chain management and billing.

Full article [here](#).

Picis Brings New Wave of its High-Acuity Information Solutions to U.S. Veterans Affairs Hospitals
Press Release, Dec. 12, 2007

-New Mexico VA Health Care System the latest to implement Picis CareSuite in perioperative areas

WAKEFIELD, Mass. - December 12, 2007 - Picis, a leading provider of high-acuity care information systems, today announced that New Mexico Veterans Affairs Health Care System (NMVAHCS) has selected Picis CareSuite® for perioperative automation, adding to the rapid adoption of Picis solutions by government medical centers for their increasingly busy and demanding surgical environments. This medical center joins a growing base of VA medical centers across the country that use Picis to automate the clinical, business and financial functions in the OR, ICU, anesthesia and post anesthesia/recovery environments.

Full article [here](#).

Long-term care IT system on the radar

Joseph Conn, *Modern Healthcare*, Nov. 16, 2007

-Part [two](#) of a two-part series (Access part one [here](#)):

...Thomas "Mike" Walters is a registered nurse and the program director of construction and medical services for the Oklahoma Department of Veterans Affairs, a state agency that receives partial funding from the federal Veterans Affairs Department. It operates seven nursing homes with a total of just over 1,400 beds. Because its residents receive most of their hospital care from federal VA facilities, the Oklahoma agency contracted with Hewlett-Packard Co. and Medsphere Systems Corp. to install the Computerized Patient Record System, a key element of the VA's VistA clinical computing system, in all of its nursing homes.

The project cost about \$7.2 million initially, Walters says, a price that included software installation and training, necessary hardware and infrastructure improvements, plus some software modifications to adapt the inpatient hospital system to long-term care.

Walters is a fan of VistA for long-term care. "It greatly reduces paperwork," he says. "People who are not computer literate have some difficulty getting used to the system, but I'm a one-handed typist and I get along just fine."

Within the seven-facility Oklahoma department, the electronic record system is completely interoperable. Residents can be moved from one home to another and their records follow them. For discharges to private hospitals and the federal VA, however, Oklahoma pulls up and prints out what Walters calls the "911 record," a paper-based discharge summary that includes demographic information, labs, medication history and the reason for the transfer. "It's done in a matter of minutes," Walters says. The physician at the receiving hospital "has everything at his fingertips."

Full article [here](#).

VA renews QuadraMed health data contract

Mary Mosquera, *Federal Computer Week*, Dec. 13, 2007

For help with managing health information and billing and compliance workflow, the Veterans Affairs Department awarded QuadraMed a \$21.8 million task order under its existing blanket purchase agreement.

Under the contract, VA renews the license for the company's encoder software and related training for all its medical centers during fiscal 2008. Health information management and billing departments at VA medical centers have used these QuadraMed products since 2005.

The software integrates with VA's VistA clinical record system to provide inpatient and outpatient coding, compliance, claims editing and revenue cycle management.

Full article [here](#).

Medsphere Releases Code for Development Testing Automation Framework

Press Release, Oct. 30, 2007

'Strongwind' Enhances Software Quality, Supports Open Source Community

ALISO VIEJO, California, October 30, 2007 - Medsphere Systems Corporation today announced the release of code for a user interface test automation framework that enables developers to create automated quality assurance scripts to test features of user interface applications. Dubbed Strongwind, this new tool developed by Medsphere engineers has improved the process of testing updates and enhancements of Medsphere's OpenVista electronic health record (EHR), a commercial version of the U.S. Department of Veterans Affairs' VistA solution. Medsphere is now making the testing platform available under the GNU General Public License (GPL) to assist third-party developers in delivering quality applications.

Full article [here](#).

VistA Health Network

Best Care Everywhere

By Phillip Longman, New America Foundation, *The Washington Monthly*, October 2007

-Here's an Idea: A Civilian VA for the Uninsured, and Maybe the Rest of Us

Yes, there is a solution to the health care crisis. It starts with the comparatively limited step of creating a high-quality health care delivery system for the uninsured, as opposed to simply throwing more money in their direction or mounting an all-at-once overhaul of the entire health care sector.

...What I'm proposing is this: Take the existing, ad hoc system we use for treating the uninsured and turn it into a real integrated system. Specifically, mandate that everyone in America buy health insurance (with subsidies to those who can't afford the premiums), and then contract with assorted St. Elsewheres to serve the resulting pool of newly insured patients. The organizing blueprint of this new system would come from the one truly successful national health care system we currently have: the VA.

...The VA model is that rarest of health care beasts: one with a perfect alignment of interest between patients and providers. This is why, for example, the VA has emerged as the world leader in electronic medical records -- and thus in the development of the evidence-based medicine these records make possible. For the rest of the American health care system, it makes little financial sense to invest in information technology and the systematic study of what treatments and drugs work best; precisely to the extent such investments improve the quality of care and make or keep people well, they dry up revenue. But for the VA, investments in quality make sense precisely because the system's financial in-

terests are in sync with the health interests of its patients.

Full article [here](#).

Hospital Error

Shannon Brownlee, *Washington Monthly*, Sept. 5, 2007

...Maybe letting residents get some rest will eventually bring down the error rate, but I doubt it. Here's why. Rested residents aren't nearly as important to reducing errors as coordinating the care that everybody in a hospital delivers. The two studies published today suggest why that might be the case. The studies included 318,000 veterans who were cared for at Veterans Administration Hospitals and another 8.5 million Medicare recipients. It turns out, error rates did go down at VA hospitals, but not at the other hospitals in the study.

When it comes to reducing medical error, the VA health system has three things going for it that most other hospitals don't have. Numero uno, every VA hospital has a fully-functioning electronic medical records system. This system not only helps physicians and nurses avoid many kinds of errors, like giving a patient the wrong drug, it also allows each hospital to track the treatment of every patient. Hospital safety officers can easily give physicians and nurses feedback on how they're doing when they implement any sort of error-reduction program. Other hospitals are left flailing along, hoping that they are making a dent when they initiate some new plan. VA doctors know -- and in real time.

And finally, VA hospitals do a better job of coordinating all the different people who have a hand in a patient's care. Veterans don't tend to fall through the cracks during hand-offs between one shift and the next, for instance. That's why my colleague Phil Longman's book about the Veterans Health Administration is titled *Best Care Anywhere*. It's also why a Democratic presidential candidate will probably be pointing to the VA in a speech later this month as one model for improving American health care.

Full article [here](#).

VA health system: interim report

Peter R. Orszag, Director's Blog, Dec. 21, 2007

CBO just released an interim report on the VA health system. VA's health care program has attracted lots of attention, and as part of CBO's ongoing effort to expand our health-related activities, we are examining the evidence on the VA system -- along with what lessons, if any, it may hold for other parts of the health care system.

In general, VA's experience underscores the potential for improving performance in a large and relatively integrated system through a sustained and comprehensive effort that involves indicators of quality, financial incentives that are aligned with those objectives, and the use of health information technology. It is important to note, though, that the combination of these factors -- a large, relatively integrated system; well-designed incentives; performance measurement; and health information tech-

nology — likely creates much more substantial opportunities for improvement than any of the pieces taken by themselves. The applicability of VA's experience to other parts of the health system, which often have a much different structure than the VA system, is therefore unclear and will be explored in CBO's final report (which will be published next year).

Full article [here](#).

The Veterans Health Administration: An American Success Story?

Adam Oliver, *The Milbank Quarterly*, January 2007
Volume 85 Issue 1 Page 5-35

The Veterans Health Administration (VHA) provides health care for U.S. military veterans. By the early 1990s, the VHA had a reputation for delivering limited, poor-quality care, which led to health care reforms. By 2000, the VHA had substantially improved in terms of numerous indicators of process quality, and some evidence shows that its overall performance now exceeds that of the rest of U.S. health care. Recently, however, the VHA has started to become a victim of its own success, with increased demands on the system raising concerns from some that access is becoming overly restricted and from others that its annual budget appropriations are becoming excessive. Nonetheless, the apparent turnaround in the VHA's performance offers encouragement that health care that is both financed and provided by the public sector can be an effective organizational form.

Full article [here](#). Requires subscription or single article purchase.

Overtreated

Overtreated: Why Too Much Medicine Is Making Us Sicker and Poorer

Publisher's Weekly, July 23, 2007
Shannon Brownlee, Bloomsbury, \$25.95 (320p) ISBN 978-1-58234-580-2

Contrary to Americans' common belief that in health care more is more—that more spending, drugs and technology means better care—this lucid report posits that less is actually better. Medical journalist Brownlee acknowledges that state-of-the-art medicine can improve care and save lives. But technology and drugs are misused and overused, she argues, citing a 2003 study of one million Medicare recipients, published in the *Annals of Internal Medicine*, which showed that patients in hospitals that spent the most “were 2% to 6% more likely to die than patients in hospitals that spent the least.” Additionally, she says, billions per year are spent on unnecessary tests and drugs and on specialists who are rewarded more for some procedures than for more appropriate ones. The solution, Brownlee writes, already exists: the Veterans Health Administration outperforms the rest of the American health care system on multiple measures of

quality. The main obstacle to replicating this model nationwide, according to the author, is a powerful cartel of organizations, from hospitals to drug companies, that stand to lose in such a system...(Sept.)

Full article [here](#).

PODCAST: Overtreated, Shannon Brownlee explains all
Interview: Matthew Holt-Shannon Brownlee, *The Healthcare Blog*, December 03, 2007

But this was one of the most recent and one of the most fun that I've ever done. It was a discussion with Shannon Brownlee, author of *Overtreated*, of which everyone in America should be forced to read at least the Cliff Notes version.

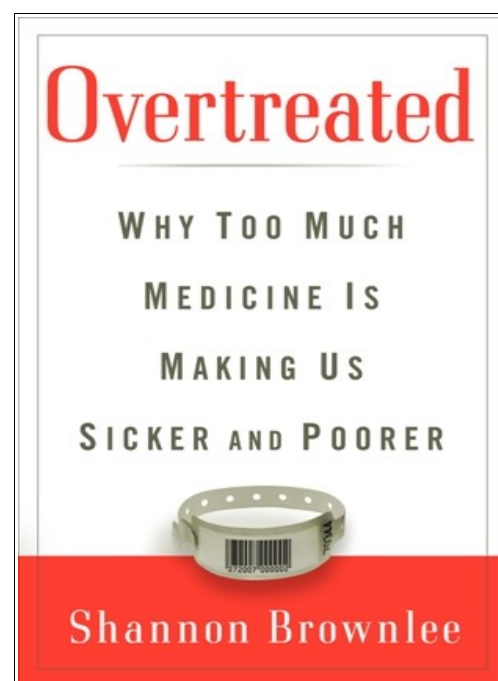
Matthew Holt: It's Matthew Holt with the Health Care Blog, and I'm back with yet another podcast. This time I'm talking with Shannon Brownlee. Shannon is a senior fellow at the New America Foundation and, more importantly, has just written a great book called "Overtreated: Why Too Much Medicine is Making Us Sicker and Poorer."

Access to blog and podcast [here](#).

Why Less Medical Treatment May Be Good For You

Nancy Shute, *U.S. News and World Report*, September 26, 2007

The more medical care you receive, the sicker you'll get. That's the stark message in *Overtreated: Why Too Much Medicine is Making Us Sicker and Poorer*, Shannon Brownlee's new book. Brownlee, a senior fellow at the New America Foundation (and a former senior writer at *U.S. News & World Report*), examined research from around the country on which medical treatments actually



Key Resources

- ◆ [Center for Collaboration, Open Solutions, and Innovation \(COSI\) in Healthcare](#)
- ◆ [VistA Software Alliance](#)
- ◆ [WorldVistA](#)
- ◆ [HardHats](#)
- ◆ [Pacific Telehealth & Technology Hui](#)
- ◆ [IHS Information Technology Resources](#)
- ◆ [RPMS Electronic Health Record Website](#)
- ◆ [VA VistA Innovations Site](#)
- ◆ [VistA Monograph Home](#)
- ◆ [Open Source Healthcare Alliance \(OSHCA\)](#)
- ◆ [OpenEHR](#)
- ◆ [Open Healthcare Framework \(OHF\)](#)
- ◆ [LinuxMedNews](#)

make people healthier and what individuals can do to ensure that healthcare doesn't kill them.

Full article [here](#).

Costly Tests, Useless Procedures Harm Patients, Boost Profits

Joan Oleck, *Bloomberg*, Oct. 22, 2007

Oct. 22 (Bloomberg) -- Americans spend more per capita on health care each year than the Chinese spend on, well, everything. Do we really need so much?

In her alarming and intriguing book "Overtreated: Why Too Much Medicine Is Making Us Sicker and Poorer," medical journalist Shannon Brownlee argues that we spend between \$500 billion and \$700 billion a year (out of some \$2 trillion total) on care that does nothing to improve our health and sometimes damages it.

Full article [here](#).

Overtreated: The Case for Single-Payer Healthcare

Steve Olsen, *The Utah Amicus*, Dec. 10, 2007

In her new book *Overtreated*, science writer Shannon Brownlee presents a well-researched, insightful argument for the root cause of America's healthcare crisis: Market forces in the system result in powerful incentives to deliver too much care. She demonstrates how the system promotes intrusive, expensive treatments over simpler, more effective ones, and documents how those same market forces financially punish providers that deliver care which actually improves the health of their patients. A related problem is that America has largely delegated basic research to drug and medical device companies, which invariably drives the use of expensive new treatments over less profitable ones. The ultimate result of all of this is clear: We spend over twice as much per capita as other industrialized nations on health care, 46 million of us are uninsured, and the data place us some-

where between Costa Rica and the Czech Republic in standard wellness statistics...

...What is the solution? Most Americans would be surprised to learn that the most cost effective, highest quality health care provider in the nation is a unionized system run by the government: the Veterans Health Administration.

Full article [here](#).

When a pound of cure is too much

Gregory M. Lamb, *Christian Science Monitor*, January 02, 2008

-Another phase of the US healthcare crisis: patients who are overtreated.

Most Americans know that the healthcare crisis in the United States is a two-headed monster: First, medical care is too expensive. And, largely because it's so expensive, that care doesn't reach millions of people who are poor or uninsured.

But what few may realize is that the crisis has an ugly third face: Many Americans receive too much medical care. Those excess pills, heart stents, MRIs, radical mastectomies, and other treatments not only are often ineffective and waste hundreds of billions of dollars, they also sometimes harm the patients they are intending to help.

That's the fascinating, counterintuitive, and potentially revolutionary conclusion of award-winning science journalist Shannon Brownlee in *Overtreated: Why Too Much Medicine Is Making Us Sicker and Poorer*. A reader is likely to come away agreeing with Brownlee that reform of the \$2.1 trillion American healthcare industry – already the size of the entire economy of Italy and rapidly growing – will never happen unless some uncomfortable truths are confronted.

Full article [here](#).

Crisis in the VA

August VA systems outage crippled western hospitals, clinics

Bob Brewin, *Government Executive*, October 5, 2007

A day-long system outage at a new Veterans Affairs Department data processing center in northern California on Aug. 31 crippled critical information systems used to manage patient care at VA hospitals and clinics scattered across more than a third of the world, according to details from an internal VA after-action report.

The outage at the VA's Sacramento, Calif., regional center was the longest of 14 disruptions since that facility started hosting the suite of clinical applications that make up the Veterans Health Information System and Technology Architecture (VistA) earlier this year.

According to internal briefings, the Sacramento facility was created as part of a move by the VA to shift VistA

Editorial Policy Statement

We publish this newsletter because we believe that VistA®, open source software, and open solutions, has the potential to vastly improve the quality of healthcare in the US and its potential to make affordable healthcare IT technology available to the developing world. At the same time the editorial policy is to be independent and, to this end, the newsletter will not promote vendor products or services. As an expression of its independence, the newsletter may, from time to time, include information that may reflect negatively on VistA® and/or other open source solutions. The newsletter may include information about future events that the editor feels are relevant to the communities for which the newsletter is intended but such information in no way endorses such events.

Opinions expressed in the newsletter and the identity of the person or organization expressing such opinions will either be clear from the context or will be explicitly stated.

Note: VistA® is a registered trademark of the U.S. Department of Veterans Affairs. It stands for "Veterans Health Information Systems and Technology Architecture."

computer operations from 126 local sites to four regional centers.

Full article [here](#).

Calif. system faced epic VistA failures: report

Joseph Conn, *Modern Healthcare IT*, HITS staff writer, Oct. 1, 2007

The Veterans Health Administration's VistA clinical information technology system and its key Computerized Patient Record System, or CPRS, went on a historic fritz Aug. 31 at the VA's Northern California Healthcare System—an integrated healthcare delivery network serving 377,000 veterans with close to 2,000 patient visits a day—disrupting service for more than eight hours, a pair of VA physician IT leaders told a congressional oversight panel last week.

In the opinion of one VA physician-informaticist who testified before the House Veterans Affairs Committee on Wednesday, part of the failure can be attributed to changes in the management structure of information technology services at the VA that were designed to improve system security and strengthen IT project oversight. The House committee held a hearing on the status of the IT restructuring program.

Full article [here](#).

VA revisits data consolidation plan

Mary Mosquera, *Federal Computer Week*, October 15, 2007

The Veterans Affairs Department must answer new questions about its data center consolidation strategy after its electronic health records system was unusable for nine hours at 17 VA medical facilities Aug. 31, and backup procedures failed.

VA officials have halted further consolidation moves until they finish evaluating the disruption.

The disruption occurred as VA was moving its health records system, the Veterans Health Information Systems and Technology Architecture (VistA), from local hospital data centers to regional data centers. By creating regional centers, VA officials said they hope to provide better security and standardized management practices to safeguard critical health records and other electronic health information. VA has two regional data centers serving the West and Northeast regions. Officials planned to open two more regional centers by Dec. 31.

Full article [here](#).

The VA's computer systems meltdown: What happened and why

Dian Schaffhauser, *Computerworld*, Nov. 20, 2007

...Characterized by Dr. Ben Davoren, the director of clinical informatics for the San Francisco VA Medical Center, as "the most significant technological threat to patient safety the VA has ever had," the outage has moved some observers to call into question the VA's direction in consolidating its IT operations. Yet the shutdown grew from a simple change management procedure that wasn't properly followed.

The small, undocumented change ended up bringing down the primary patient applications at 17 VA medical centers in Northern California. As a result, the schedule to centralize IT operations across more than 150 medical facilities into four regional data processing centers has been pulled back while VA IT leaders establish what the right approach is for its regionalization efforts.

Full article [here](#).

Change Log

This is the second revision of the Jan/Feb 2008 issue of *VISTA® & OPEN HEALTHCARE NEWS*. The primary changes in the first revision were formatting changes to separate the Special Report into its own section. We also moved all the congressional testimony into that section so that it would represent a continuous report. We also fixed some hyperlinks and made some minor editorial changes to some of the text boxes for clarification purposes. We also properly numbered the text boxes. An additional conference was included in the "Upcoming Events" section. In the second revision two additional conferences were added to the events section and a minor copy edit change was made to box 7.

Systems Doctor

David Perera, *GovernmentExecutive.com*, February 1, 2006

Robert McFarland, VA's chief information officer for the past two years, is changing all that. He's phasing in an order signed late last year by Veterans Affairs Secretary R. James Nicholson, which gives the CIO budget control over technology spending. Previously, McFarland was in charge of direct appropriations worth about \$50 million a year, mostly limited to departmentwide projects such as enterprise architecture. Now his budget is \$1.2 billion, almost all planned information technology spending. McFarland's new duties include quarterly decisions on whether to continue funding the agencies' software development projects. "It's within my power to refuse to fund," he says, adding that the department's secretary or deputy secretary can overrule him.

Still, McFarland wants more. All employees responsible for information technology operations and maintenance, for example, will report to him. But the separate VA agencies will continue to pay the salaries of software development employees. McFarland has oversight and funding powers over development projects, but not direct control. It's no secret, he says, that he favors further centralizing the IT governance structure. Some in Congress are behind him -- although many inside the department think McFarland already has too much control.

Full article [here](#).

US Department of Veterans Affairs Selects Cerner Corp Laboratory Technology

Press Release, Nov. 6, 2007

KANSAS CITY, Mo. — Nov. 6, 2007 — Cerner Corp. (NASDAQ: CERN) today announced a nine-year agreement for the United States Department of Veterans Affairs (VA) to utilize Cerner Millennium® PathNet® laboratory information system in more than 150 hospitals and 800 clinics in the Veterans Health Administration system.

This will be the largest implementation of PathNet to date for Cerner. Coupled with the Department of Defense, another Cerner client, these federal implementations represent approximately five percent of all U.S. hospitals.

Full article [here](#).

Background

Roger A. Maduro is the publisher and editor-in-chief of *VISTA® & OPEN HEALTHCARE NEWS*. He is a leading expert in the application of open source software and concepts to improve information technology systems. In the past 7 years his company, LxIS, has focused on solutions in healthcare, in particular the migration of VistA® from an application platform specific to the U.S. Department of Veterans Affairs to one that can run at all levels of the healthcare system. This includes private sector clinics and hospitals to national health systems. He is one of the founders of the VistA Software Alliance (VSA) and currently a board member. He is also a member of the WorldVista organization.

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