

JOURNAL: Electronic Medical Records Project
Central Valley Health Network: Central San Joaquin Valley, California

The Central Valley Health Network comprises 12 community health centers, including 11 FQHC's and one FQHC-look-alike, in the Central San Joaquin Valley of California. Three of the health centers have come together in conjunction with the Network to develop and implement a collaborative electronic medical records system.

The global project goals, agreements, and expectations are three:

- 1) All (12) member health centers and all sites (currently 79) will ultimately use the Electronic Medical Records system to record, track, and manage patient primary care information; and to improve overall patient care management and health status.
- 2) The full-time staff required to maintain the system will be employees of the Central Valley Health Network. Each community health center corporation will devote staff as required to implement and maintain the system implementation at each chc site.
- 3) CVHN and its member centers expect considerable cost savings over both the short and the long-term as a consequence of collaborating and sharing resources: savings will occur in the areas of product cost savings, upgrade cost savings, staff training, and the pooling of staff skills necessary to run the overall system and interface with the selected vendor corporation.

The three health centers in the pilot project are:

- Darin M. Camarena Health Centers, in Madera (DMC)
- Family HealthCare Network, based in Visalia (FHCN)
- Golden Valley Health Centers, based in Merced (GVHC).

All three health centers have selected the Companion/Mega-West (MW) practice management software system: two of the three centers have been on the system for several years; and one of the centers has selected the system to replace Resource America and will begin operating on the new system in January of 2002.

The following journal provides information about the individual centers, our practice management and electronic medical records experiences to date, and about our joint project as it develops. This journal will be updated periodically

Date	Topic	What we've done	What we've learned
1989	Early profile: GVHC	Golden Valley Health Centers Staff implemented the AmbuQual quality management system, as part of a progressive drive to improve the quality of care at GVHC.	++++: We have kept with the system, and improved it, and it has improved us, over time. ++/--: We chose the Resource America practice management system and through dedication managed to make and keep it working for us, despite its limitations and increasing antiquation.
1990	Early profile: FHCN	Family HealthCare Network was the first of the three centers to purchase and implement the MegaWest practice management system.	---: There were many times we wanted to bail out because of systems and designs problems. ---: Although our customizing of the system has worked well for us, now we have to back out of a great degree of specialization to establish the common platform and upgrade that all three centers will be using as the practice management base. +++ : Sticking with the system has brought us to the point of having a common system upon which to build the EMR network.

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1993	Practice management system history, including "basic" EMR	DMC: <ul style="list-style-type: none"> • Booted up the M-W system, including basic SOAP notes with medication and problem lists updated automatically from the SOAP notes at each visit. • Internal e-mail established (3 locations in one town) • Began annual one-week marathon EMR training and testing. Mandatory attendance. Scheduling in multiple classes handled by Department Heads. 	++++: No more programmatic audit findings for incomplete problem and medication indexes!!! ++++: the use of a selection taskforce comprising representatives from all operational groups created ownership of the system and implementation without hitches or complaints. ++++: Annual training built into budget has kept staff computer skills up-to-date and expanding with software modifications and upgrades.
1994	Practice management system history, including basic EMR	DMC: <ul style="list-style-type: none"> • Urgent Care site stopped pulling charts 	+++: site productivity bolstered by not waiting for temporarily lost records to be found. +++: you <u>can</u> provide urgent care services to returning patients based on computerized info, including progress notes, problem and medication indexes.
1995	Practice management system history: creative use of basic EMR	DMC: <ul style="list-style-type: none"> • Dial-up access for clinicians established at their homes 	+++: access to computerized progress notes and medication lists increases clinician satisfaction and ability to field patient calls from home
1996	Pioneering interface between two big computer systems: UniLab and MegaWest	DMC: <ul style="list-style-type: none"> • Interface between UniLab software and MW system established • All labs downloaded into system by DMC Staff after reviews. 	---: It took twelve months. We almost gave up. Clinicians grew increasingly skeptical. +++: Perseverance wins all. It can be done. +++: maintaining proactive relationship with MW all these years paid off. Yes!!!
1997	The drive to quality	FHCN seeks and obtains JACHO accreditation.	+++: We feel proud of our achievement. ++++: We were re-accredited in 2000.
1998	Forming the nucleus	Central Valley Health Network is incorporated, and receives initial information technology funding through a Federal ISDI grant.	---/++: Initially we felt conflicted between our dreams and our desires: EMR was an early target and discussion item; data warehousing as a network, with all the connective hardware and sophisticated staff skills that warehousing implies, seemed both very desirable and simultaneously way beyond reach.
1998	Funding opportunities emerge	The California Endowment contracts with the Tides Foundation to offer MIS/IT money to CA community health centers	++: The CVHN as well as most CVHN CHC's apply. We share information about our current IT inventories (hardware, software, connectivity between sites). We begin to move past our individual IT senses of achievement and inadequacy.
1998	The dawning of enlightenment	DMC: <ul style="list-style-type: none"> • Clinicians began discussions 	+++: Clinician and support staff

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		about the MW system's inadequacies: inability to extract pt. outcome info out of text-type data. <ul style="list-style-type: none"> • Desire for an EMR system that can quantify methods and results. 	successes with limited EMR at one site generate hunger for significant system improvements.
1999	The dawning of enlightenment, continued	GVHC: <ul style="list-style-type: none"> • As part of our participation in Federal Diabetes Collaborative, 3 of our clinicians began to use an EMR-internet product • 	--: Staff grew frustrated very quickly with the initial diabetes registry we designed: doing data entry "second-hand" is duplicative, expensive, and at least occasionally inaccurate!
1999	EMR software explorations	DMC: <ul style="list-style-type: none"> • Formed a multi-disciplinary EMR task force, including clinicians, lead medical assistants, lead front support staff, medical records lead, operations and financial staff • EMR initial criteria list developed • Began EMR demos on-site 	---: Y2K issues slowed us down.
1999 Septem-ber	The dawning of enlightenment	FHCN: <ul style="list-style-type: none"> • Decided to discontinue plan designs to implement MW EMR improvements b/c of limitations of product • Identified and began working on infrastructure improvements to facilitate preparedness for a better EMR product 	+++: It's okay to stop staff and resources investments in a system that is going to create a "dead end" and not get us where we want to go.
2000 May	EMR software explorations	GVHC: <ul style="list-style-type: none"> • Formed our EMR Committee • Looked at three (3) products, as an introduction to clinicians of what is available 	+++: get clinicians "on Board" by involving them in early discussions and explorations to facilitate ownership and commitment
2000	EMR software and funding explorations Clueless!	DMC: <ul style="list-style-type: none"> • Continued to look at demos • Wrote application to Tides Foundation for EMR support: got \$100K • Developed an RFP for vendors 	+++: It's great to get affirmation from outside sources that EMR is the way to go. ---: We had big plans without understanding how much our internal IT infrastructure would have to change to support it: like going from a Volkswagen to a jet!
2000 October	EMR software explorations	FHCN: <ul style="list-style-type: none"> • IS Director and CMO begin looking at EMR products 	+++: It's important to consider the unique needs of FQHC's in identifying appropriate vendors and products.
2000 October	The continuing dawning of enlightenment The beginnings of CHC collaboration	GVHC: <ul style="list-style-type: none"> • Discovers that GVHC and DMC, with centers 45 minutes apart, are both looking for EMR • Calls up DMC and says, "Let's get together." 	+++: the combination of excitement and fear generated by the prospects of a collaborative project that is going to test our joint internal and external mettle is a heady combination of feelings and challenges. Thanks for the initiative, GVHC!

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2001 Jan. thru March	The continuing beginnings of collaboration	<ul style="list-style-type: none"> • GVHC and DMC agree to collaborate and notify Tides. • FHCN asks to join • Questions about the role of CVHN 	<p>---: Initially some rocky communications back and forth between three health centers who have maintained their sturdy independence from one another trying to sort out how to communicate, how to share information, and how to pool resources</p> <p>---: Role identification crises!</p>
2001 March--May	Technical Assistance	<ul style="list-style-type: none"> • CVHN and representatives from all three health centers meet with technical assistance resources in Washington, D.C. • A CA site visit is arranged and held in May 	+++: getting expertise on planning and infrastructure and final criteria for software evaluation and selection from people who have been there before makes the job a lot easier, a lot less mysterious
2001 May	Infrastructure	<ul style="list-style-type: none"> • ISSC (The Information Systems Steering Committee) is formed, comprising CMO's (Chief Medical Officers), CFO's (Chief Fiscal Officers), and COO's (Chief Operational Officers) from among the three sites and CVHN, with CIO's (Chief Information Systems Officers) as "resident experts" • Goal statements and plans are developed • Resources are pooled and more complete CHC IT inventories are taken. 	<p>--: Some difficulty in determining who is to represent each health center on the Steering Committee.</p> <p>++: No difficulty in leaving the CEO's off the Steering Committee! With their agreement, this is an operational committee.</p>
2001 March—June	EMR applications joint research	<ul style="list-style-type: none"> • The three health centers conduct joint site visits to "successful" vendor implementation sites 	---: Some of the vendor application sites are not as successful or as committed as others. Distinguishing between vendor application problems and site utilization problems are difficult.
2001 June	EMR Vendor Finalists Selection	The ISSC selected two vendors as finalists.	<p>--: It was determined that one more site had to be visited: scheduled for the end of July.</p> <p>++: Group working at being fair to all interests within the group and working hard at due deliberation.</p>
2001 June	Connecting the Health Centers	Consultant hired to produce best solution to digitally connect our health centers.	++: Outside expertise to navigate through the maze of options and ongoing costs is worth the dollars spent.
2001 June	Subsidiary corporation be formed	CVHN Board voted to form a subsidiary corporation for all participating centers (initially the pilot three, and eventually every other CVHN CHC member as it begins to participate).	+++: Relying on legal counsel to advise us, seeking the right balance between effective operational decision-making and long-term Board buy-in.
2001 July	Additional Research	Additional site visit	++: Additional site visit paid off to help us distinguish between vendor

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			application problems and site utilization problems.
2001 July	Hiring Staff	Discussions regarding hiring a project manager	+: Decided that a project manager is needed to successfully implement this project.
2001 July	Check List	Vendor Check list created/improved	+: Revised vendors check list helps to keep our focus on the product and allow us to compare product to product.
2001 Aug.	Time Frame	Our initial time frame created earlier in the year is slipping	--: It takes longer as a group to make decisions. ++: As a group more items are discussed and accounted for.
2001 Sept.	Vendor Ranking document	Created a Vendor Ranking Document to better compare the applications side by side.	++: By asking what we really want and applying this to a document that ranks the product, we have unmasked the sales hype.
2001 Sept.	Time	Extra meetings for the ISSC to accomplish our goals	--: The reality hits home, It takes time and energy to complete due-diligence on products.
2001 Sept.	New Board meets	The newly formed EMR Board meets and moves forward with forming a new subsidiary	++: New Board very interested in success of project and supportive of the ISSC work. --: Naming a company is not as easy as it we thought.
2001 Oct.	Vendor product final questions	Both vendors were asked to demonstrate specific features and answer specific questions about their product.	++: Spending the extra time and asking specific questions allows us to judge each product for what it can do, not what it is implied to do.
2001 Oct.	Vendor products ranked	6-hour session so we can compare both products and give them a 1-2 ranking based on our point system.	--: 12-hour day a bit long for us. --: Not everyone can be happy with the #1 ranked product. ++: Determination to stick out the process and work with the group prevails ++: Ultimately 100% agreement on the ranking.
2001 Sept. – Oct.	Negotiating Committee Formed	CVHN CEO, DMC CFO, GVHC CIO, and FHCN CMO form committee for broad representation with the purpose of the committee to negotiate the final contract with vendors.	++: Creates a balance of knowledgeable and experienced individuals in an effort to obtain the best deal possible.
2001 Nov.	Final vender selection	ISSC made formal recommendation regarding vendor selection to the negotiation team. Negotiation team begins work.	--: The vendor evaluation process seemed to take a lot longer than it we expected. ++: Persistence pays off.
2001 Nov.	Governance	CVHN Board files all necessary documents with the	++: The need to form a subsidiary for liability protection.

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		<p>state for the new subsidiary. Community HealthTech Board will have a CEO representative from each of the participating CHCs and CVHN. The CHT Board has total responsibility for the project. The contract will be between the vendor and CHT.</p>	<p>--: It is difficult to create a non-profit within a non-profit, therefore, CHT is for-profit. ++: Since a subset of our membership is the initial participants, the CVHN Board decided that the members participating in the project should be making all decisions. In this situation trust among all members is vital.</p>
2001 Nov.	Additional Collaboration	<p>Meeting with California Health Care Foundation* (CHCF) staff to discuss possible ways to collaborate. ISSC shares what we have learned to date, and CHCF helps with an appraisal of some of our strengths and weakness. * CHCF is a California Foundation that specializes in health care information technology.</p>	<p>--: Prior to meeting CHCF seems skeptical that EMR will work. ++ After meeting CHCF has new outlook on possible EMR success. ++: Outside viewpoint, that is not only non-biased but some what skeptical, really helps to validate that we are on the right track. If we can pass the professional critics early on then we must be on the right track.</p>
2001 Nov.	Staffing	<p>Project manager search underway. Hired three recruitment firms to do a search for us. CHT Board revised and approved job description.</p>	<p>++: We outsourced the search to relieve us the pressure of another task to do. --: Everything takes time. It is painful to take the time to do this right. We really needed someone yesterday!</p>
2001 Nov. thru Dec.	Legal Assistance	<p>Negotiation with the vendor requires extra steps. Had documents reviewed by legal, technical, and administrative experts.</p>	<p>--: Documents take time to insure proper language. --: Additional time to have legal counsel review every document.</p>
2001 Nov. thru Dec.	Additional Documents	<p>System Acceptance Specifications provided by BPHC consultant and sent to vendors.</p>	<p>++: Working with BPHC and consultants produces quality documents. ++: Time saved by not creating documents from scratch.</p>
2001 Nov. thru Dec.	Negotiation strategy	<p>Functional requirements were included in RFP and the RFP will be part of the contract. A detailed list of requirements has been sent to each vendor.</p>	<p>+: We are striving for security that we will be fully informed purchasers. +: Fewer surprises (we hope).</p>
2001 Dec.	Funding	<p>Received a \$300K grant from a local foundation.</p>	<p>++: As groups become aware of this project the interest in participation increases.</p>
2002 Jan.	Staffing	<p>Search continues for Project Director. Interviews occur with several candidates</p>	<p>--: We have found it difficult to find a candidate with the needed balance of executive and administrative plus technical skills. Most candidates have one or the other but not both.</p>

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2002 Jan.	Contract Negotiations	Vendors respond to list of required items for contract. Both vendors agreed to many of the items we requested. The items included termination clauses, payment schedules, and definition of "acceptance", templates.	++: Again, the assistance of the BPHC Consultant, Will Gaud, was invaluable. He helped us develop our requirements and evaluate the responses. ALWAYS ASK – YOU MIGHT GET A YES
2002 Feb.	Vendor Negotiations	Negotiations begin in earnest. One person selected as the team spokesperson to insure a consistent message. Clarification requested on several issues. Additional references checked specifically about implementation.	++: A lot of time (network and health center staff, legal, consultant) must be allocated to the negotiating process for a contract of this complexity. We spent many hours making sure that everyone was on the same page in terms the vendors' responses to proposals.
2002 Feb.	Staffing	After several interviews and reviews of resumes did not product a consensus candidate, the CHT Board revisited the job description and title. We changed to a CEO position from a Project Manager.	--: In the IT world, Project Manager is a well-defined, commonly accepted position. While overseeing the technical and training phases of implementation is a part of a Project Manager's usual duties, the management of a corporation is not. We need both. With the Project Manager job title we were not getting candidates with the broad range of skills needed.
2002 Feb.	Vendor Selection	Having completed final due diligence and gotten all questions answered, the negotiating committee recommended to CHT that the Cerner product be purchased. CHT Board agreed 2/15/02. The vendors were notified.	++: Fifteen months of planning and product evaluation paid off. We believe we selected the best product for our needs and a company that will be a good partner.
2002 March	Planning	The CHT Board and the ISSC felt a need to regroup. A daylong-facilitated planning session was held March 4. Everyone wanted an opportunity to revisit and reaffirm how we will collaborate on an ongoing basis.	++: The project got "more real" with final vendor selection. The steering committee had been formed primarily as a planning and vendor selection committee. We needed to discuss how we would collaborate as we move into the implementation phase. We also needed to celebrate our getting to this point, which we did with a dinner.
2002 March	Final Contract Negotiations with Cerner.	This was an intense month of line-by-line negotiations of a contract that is one inch thick. We were offered incentives if we signed the contract by 3/31. Literally every word was	++: It's done! Contract signed 3/29/02. --: Very expensive. A lot of attorney hours needed. --: Stressful - We wished we had a full-time experienced staff

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		reviewed by negotiating team, attorney, consultant. Cerner representative on site during final week. May concessions were made by Cerner to meet our requirements.	person in place six months ago.
2002 March	Staffing	Recruitment for CHT CEO continues. Interviews conducted.	++: The candidates are more appropriate for our needs. Change of title was a good idea.
2002 April	Collaboration	One health center expresses second thoughts. Decision was made hold a daylong meeting with other interested CVHN members. Meeting held 4/22.	++: Other CVHN members support project. One expresses high level of interest in being included as a part of the pilot.
2002 April	Implementation	First meeting held to discuss implementation issues and schedule. Official kickoff will be 3 day meeting later in the spring.	++: Everyone feels we are underway.
2002 May	Staffing	CEO hired and began work on 5/6.	Hire your executive early in the process. Our Board members spent too much time working on projects the executive could have handled.
2002 May	Implementation	Kick-off scheduled for June 4-6 in Fresno.	Begin planning key events early to avoid costly delays. Our kick-off was delayed 1-month due to vendor unavailability.
2002 May	Connectivity	Finalized the dual-hub redundant network as designed by the Consultant.	Have design specifications of contract communicated to all vendor support departments, especially IT.
2002 May	Collaboration	The health center that was expressing" second thoughts" has formally withdrawn from the project.	Secure written contracts from your collaboration partners before finalizing vendor contracts.
2002 June	Kick-Off	3-day EMR project kick-off held in Fresno, CA. Over 45 attendees involved in training, demos and product customization.	Get right people to each session. Control agenda to maximize benefit. Be prepared to fill program gaps with additional project information.
2002 June	User Training	ISSC Team tests two Cerner training tools. Primary tool is a web based CD (WBT). Secondary training will occur within our future production environment.	Avoid frustration; limit training tool access until tested and working correctly. When distributing, make sure sufficient copies are available.
2002 July	Hardware Compatibility	We discovered our EMR remote host vendor did not support all of our printers and scanners. Problem will be resolved, but much anxiety results from process.	Make sure that the contract states the Vendor will support all existing output devices.

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2002 July	Planning	We held a one-day retreat to focus on project clarity, planning and decision-making.	The more geographically separated the EMR participants, the more frequent face-to-face planning sessions are necessary.
2002 July	Interfaces	We met with our two primary interface vendors (practice management system and laboratory) to plan out the sharing of data with our EMR network.	Sharing data between systems using HL7 protocols is very complicated and time consuming to establish. Start this process very early (minimum 6 months).
2002 July	Connectivity	Our information system managers have spent months working out the details of our dual-hub network design.	Make sure the contract clearly spells out the details of your network design. Use other vendors to help consult and design the ideal network. Prioritize the development of appropriate redundancy levels to limit downtime.
2002 August	Meetings	Cerner is now attending our semi-weekly ISSC meetings via conference and we have established a new weekly technical meeting with Cerner as well.	Voice-mail tag and email lag tend to be non-productive. Establishing set meetings in problems areas have been successful in moving the project along.
2002 August	Data Requirements	We have spent the last two months working on the massive amounts of Center information that is required to build our customized EMR. We still have a ways to go before completion.	We were not prepared for the amount of effort we would need to expend to collect and develop the information needed by our vendor. We also needed to learn a different language that was spoken by our vendor.
2002 August	Scanning	We elected to not upgrade our contracted single-document scanning to batch scanning. This came after much discussion and concern over whether we selected the best option.	Make sure you know the types of scanning available from your vendor and the capabilities of each. Turns out we had good advice from our consultant and selected the right option.
2002 August	Transcription	We decided to input the residual transcription directly into the EMR. This eliminates the costly and problematic interface we would need to develop.	EMR will change processes within medical environments. You can't assume business and usual. The more process planning you can conduct the better the end product will perform.
2002 September	Data Build	Completion of basic information and data build info needed by vendor going slower than expected. Insisted on on-site vendor assistance, which was leapfrog advancement.	Expect early inertia and be prepared to bring vendor staff in early to assist on site with problems with technology language difficulty.
2002		Vendor project executive has	Quickly access the leadership

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October	Vendor Executives	lost the confidence of most of the EMR project leadership team. Insisted on change from vendor.	capabilities of you vendor's executive. If immediate confidence is not universal, don't be afraid to switch.
2002 October	Vendor Training Recommendations	Late in the project the Vendor changed directions by recommending certification training for network staff. This was an expensive and non-budgeted project surprise	Thoroughly review Vendor health center and network training recommendations during and after contract negotiations. Get complete list of Vendor suggested training and the schedule for each. Time the hiring of network training staff around the class-training schedule.
2002 November	Network Staff	Hiring of network training staff identified as behind schedule. Tapped pilot health centers as resource for candidates.	Hiring health center staff for network positions radically reduces time for recruiting and basic training.
2002 November	Test Scripts	Vendor provided test scripts (used to train and test database build) were poorly written and both frustrated and wasted the time of expensive health center staff.	Insist on extensive vendor checking of test scripts, network staff sampling and calls to last health center that used test scripts.
2002 November	Learning Plan	The Vendor provided training on developing the end-user training plan. This exercise was very helpful in completing the time-line for the balance of project.	Recommend this occur as early as 8-months before go-live.
2002 December	Training Materials	We discovered the Vendor did not have training materials to assist the building of our curriculum. Borrowed what we could from other Vendor clients.	Don't assume training materials will be available for your trainers. Begin examining what's available during contract negotiations.
2002 December	Vendor Budget	The budgeted Vendor professional fees for installation are projected to exceed budget. We are trying to find ways to stay within the budgeted amount.	If you can, establish a maximum fee contract for installation. If you can't, assume you are over budget day-1 and make every attempt to manage Vendor budgeted hours.