2010 HIMSS Davies Ambulatory Care Award Application
for The Diabetes Center, PLLC
Ocean Springs, Mississippi

Submitter	Kathleen Cecilia (KC) Arnold Nurse Practitioner/Owner	
Practice Name	The Diabetes Center, PLLC 3099 Bienville Blvd Ocean Springs, MS 39564 Phone 228-875-3606 Fax 228-875-3687	
E-mail **Web**	kcdiabetes@bellsouth.net www.kcdiabetes.com	
Providers	Nurse Practitioner	1
FTE's	Nurse	1
	Receptionist	1
	Biller	1
	Medical Assistant	1
Location	One clinical office	
Volume	Average annual patient office encounters per provider	3900
	Active patients per provider	1500

EHR Team
KC Arnold, ANP
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The Diabetes Center, PLLC has no commercial/employment relationships with any vendor of our EHR system.

I have been actively using an EHR since 2000. I am an early adopter. I implemented e-MDs out of Austin, Texas as a nurse practitioner employee for a private practice endocrinology group of 2 endocrinologists and 2 nurse practitioners. I believe in utilizing technology in health care to facilitate documentation and billing. At this previous practice I literally installed the software myself and worked with my technology resistant staff to adopt an EHR. The group did not fully understand the use of an EHR and it was a half paper and half electronic use of the software. I was an employee at the time and had to bend to what the physician owner was comfortable in using.
In August 2005, Hurricane Katrina devastated my community. I was without access to the main office database for several weeks due to internet access not being restored. Three weeks after the storm, my physician employer informed me that she was closing my satellite office. The reason given was that the patient population was down due to the storm. This was a Monday morning and I had a choice of moving to the main clinic or being released from my contract. I had to be out of the office within five days.

I did not have a business plan or financial backing. I made a decision within 24 hours to open up my own clinic for diabetes. There were no other clinics in the area for diabetes owned by a nurse practitioner but, I thought I could do it. Time was of the essence to keep momentum for patient care, particularly since Katrina had resulted in many practices in the area being unable to treat patients, or which had closed permanently. This had created a devastating negative impact for chronically ill patients who needed ready access to care. I gave myself a goal of 3 weeks to pull a new medical clinic together.

I was not able to transfer any patient charts or demographics from my old clinic. The decision to use an EHR was an easy one for me. I knew the scheduling and charting parts of e-MDs but I had no clue on billing. The best part of the implementation was that I was starting with a new clean slate. I did not have thousands of paper charts to incorporate. I purchased the hardware and software. The computers and software arrived. I used help to network the system and I loaded the software for e-MDs myself. This occurred the day before my doors were open.

On November 1, 2005, I opened The Diabetes Center, PLLC. I had one RN employee. My first day, I had one patient. I thought I was doomed. The lessons learned during this period were extremely focused on a post-disaster mode. We were not able to obtain new internet access due to the disaster circumstances so; I piggy backed my server to another office's restored DSL. I had to learn the billing software myself. As a provider, it is truly advantageous to know how to accomplish day to day billing. I started slowly with workflow and built to seeing on average 20 patients per day for diabetes. I am able to track clinical outcomes and sit down face to face with every patient and review their overall diabetes health status. I have a smooth operation for a diabetes-focused medical practice that now has four employees and was profitable within one year.

I have been recognized as Nurse Practitioner Entrepreneur of the Year in 2007 by Advance for Nurse Practitioners Magazine. I credit my success as a nurse practitioner owner to the use of my EHR.

The Organization

The Diabetes Center, PLLC is a nurse practitioner owned private practice focused on the treatment on management of patients with diabetes from ages 13-geriatric. The site is in Ocean Springs, Mississippi. The organization is a one provider with one registered nurse and three other medical staff. It serves a patient population of a 75 mile radius on the Mississippi Gulf Coast with approximately 125,000 lives in the suburban area. The payer mix is 40% Medicare/Medicaid and 60% other third party payers. The practice was opened on November 1, 2005 as a direct result of the impact Hurricane Katrina had on the previous practice at which the owner worked as an employee. Because Katrina had destroyed bridges and other infrastructure around the old clinic, that clinic was shut down. This resulted in a loss of access to the care needed by patients in the community. The nurse practitioner who owns The Diabetes Center identified a critical need to continue care for patients suffering from diabetes who were unable to travel elsewhere, and so decided to open her own clinic.

Education classes are offered free to patients. The latest technology via insulin pumps and sensors are offered to appropriate patients. The practice focuses on compassionate care for patients with diabetes.

Why Implement EHR?

Management: Business Objectives-Pre-implementation

The decision to implement an EHR was because the owner had experience with utilizing an EHR and was able to implement the software the way she had always wanted to do it to maximize potential. The vendor chosen was e-MDs due to having prior experience with the company as well as the software. Due to the urgency to provide care post-Katrina, the timeline of three weeks to opening the clinic was extremely tight. This is not always ideal for an ordered implementation.

Use Technology: The investment in the software up front would be crucial to daily operations and to ensure the sustainability of the practice. The owner envisioned a paperless chart practice to save on personnel and help achieve an objective to become financially viable within one year.

Rapid Implementation: A quick ramp up time was also critical. Because the provider and her nurse had utilized the software in the previous setting this made a significant impact on how quickly the system could go live.

Quality of Care: Quality of care was also a critical goal. With an EHR, clinical outcomes would be easier to track and could be used with every patient encounter.

Patient Satisfaction: Patient satisfaction was another objective that would be easier to achieve because of the efficient visit process, prompt turnaround times for phone calls and other follow up communications, and prescription requests.

Efficient Billing: Another objective was more fundamental: ensuring that billing processes ran smoothly and inexpensively to ensure the cash flow needed to sustain operations; but to do so without adding too much overhead. The lesson learned by the provider was that the billing side of a practice isn't easy. This required that she learn how to do the billing on her own, keeping overhead low. It took three months to fully implement electronic filing and remittance. The nurse practitioner had to learn billing from the basics. Because of the circumstances, she did not have time to attend classes or go for live training. The provider saw patients until 5 pm and then became the billing person from 5pm until 9pm. The provider had to grow the practice slowly and add personnel when financially feasible.

Project Organization

Leadership Governance

i. Approach and Rationale: My approach for rolling out the EHR system was an all at one "big bang approach". I had no paper charts to deal with so scheduling, charting, and billing were implemented from day one.

ii. Encouraging Adoption: The nurse I hired had used the same system for one month prior because she came with me to the new clinic. This "we are in it together" method encouraged a smooth adoption and it was easy in a new clinic setting without people being set in old habits.

iii. Governance and Staffing: The owner did not have time for a project governance or staffing plan. This was a sink or swim implementation due to the circumstances of Hurricane Katrina. Literally from day one we were live on the system.

iv. The EHR vendor's roles and responsibilities were to ensure a smooth transition. They did not recommend going without official training on the billing system, but allowed me to go ahead due to the disaster circumstances. The company knew of my experience with the charting and scheduling system and had an identified person to help me with the implementation process. I called frequently and utilized internet training numerous times with the EHR vendor. The company had never had a practice implement the software in this short a period of time.

v. Roles & Responsibilities: Implementing an EHR in the practice creates new roles and responsibilities for the practice.

   a. The leadership and management's efforts for establishing workflow and clinical care were between the nurse practitioner and nurse. Having a tiny amount of staff and only one provider made it easy for templates and discrete data to be entered consistently. The clinic has only one specialty: diabetes.
   b. The lab interfaces were initially set-up by the nurse practitioner/owner. Since that time the nurse has taken over the lab interface management. New forms, templates, and data fields are generated by the provider

since these control the data being collected by the system for quality reporting.

vi. IT: IT support was initially purchased though a local company Digital Network Solutions (DNS). DNS did not have experience with this particular EHR. The provider contacted them directly for the purpose of establishing the computer network and installing peripheral devices: scanner, printers, and fax-modem. The same company is still utilized for network maintenance on an as-needed basis.

vii. Lessons learned:
- Knowledge of the billing process and billing training up front really would have helped.
- There were no IT companies that had experience with the EHR and at the time the provider wishes there had been experience locally.
- Opening up a clinic in 3 weeks or less is not the ideal time frame!

Implementation Planning

i. Readiness.
   a. Planning Process: The planning process was extremely brief. I had literally one day to drop lines to work stations and set up the network system. The next day would be loading the e-MDs EHR software and the following day opening the clinic.
   b. Plan: The networking period would be an 8 hour work day. The software installation would be done by the nurse practitioner with telephone and internet support from e-MDs the following day. No disruption to patient care would occur because the clinic was not open.
   c. Lessons learned: The time frame was extremely short and allowed no room for issues with networking or installation glitches. The plan worked and we were able to open the first day of clinic with the system up and running.

Project Organization-Training

a. Training Methods and Thought Processes: I had only one employee to start with. She was a nurse and had used the charting and scheduling system in the previous clinic. She did not need training. The nurse practitioner needed training on the billing system. She had excellent knowledge of the charting and scheduling system. She communicated with the technical support to learn how to use the billing system.
b. Initial and Current Training, Education and Support Strategy: The initial training was fast and furious because the clinic opened quickly. New employees were trained by the nurse practitioner. Education is maintained by attending the yearly e-MDs User Conference. Upgrade notes are also studied with each change in the software. When new staff is hired, their training is typically done by existing staff who are familiar

with the system and who can focus on the functionalities core to a person's job function within the clinic.

c. How, When and Where Training Was Accomplished: Due to the start up circumstances, the training was very much done "on the job", although the prior experience with the e-MDs system made this much easier. The real challenge was learning functionality never used before. The nurse practitioner owner would see patients from 8am until 5pm. Then she would learn the billing section of the software and await the approval of the electronic clearing house to send claims. She would stay until 9 or 10pm until the administrative issues were working properly.
d. Lessons Learned: Although it is very hard to anticipate all the challenges of starting a new practice in a rushed manner, experience and having only one employee at first really helped the organization implement the EHR software very rapidly. Both the nurse practitioner and nurse had previously worked with the software and this made the training go fairly smoothly.

Implementation

a. Strategy for the Transition to the EHR & How the Strategy Developed: The clinic opened on day one with the EHR. We did not have to transition from paper records and due to the timing of the startup; a formal strategy was not possible. Circumstances at the time also made records requests difficult so information was often not available. Thus, the strategy was simple and designed by the staff. There was no historical clinical data and usually no old records to scan. The important patient history data was entered on the first visit into the areas set aside for these by the EHR (e.g. Health Summary section). Where possible, we tried to obtain copies of labs and other pertinent medical documents from the patients' other providers to improve the reliability of the history and these were scanned into the system. This information was typically entered on the same date as the initial appointment as part of the patient registration and electronic chart establishment processes and while querying the patient.
b. Successes and Failures: There were often administrative delays in getting medical records from the previous clinic. Often times, we started with a fresh history from the patient. The success of the implementation was simpler because no scanning of old documents was needed and so in some ways, even though there may not have been a complete history, the process of starting a patient chart was simpler than might have been the case if there was a large paper chart to sift through.
c. Lessons Learned Through Experience That Could Have Benefited the Effort From the Outset: Obtaining a medical release of records at the time the initial appointment was made could have smoothed the initial data entry process. We did not expect a delay tactic from the previous clinic and this slowed our efforts to build a complete history of the patient tremendously.
d. Main Areas That Were or Were Not Successful and Effect on Strategy: The successful areas were not having previous old medical records to scan. The clinic started fresh and built the database one patient at a time. Obtaining records from the old clinic proved to be extremely difficult. We communicated with one employee directly to help smooth the flow of records we needed for each patient.
e. Process Used for Tracking the Estimated and Actual Implementation Schedule: Since this time frame was so brief there was no tracking process.

f. Encouraging Broad Participation in the EHR Implementation Planning and Process, Challenges and Overcoming Them: The clinic used the EHR from day one. There were no old habits to carry forward and with a small staff, everyone was on board from Day 1. There were some communication challenges. There was no direct communication from the front desk to the nurse practitioners office and exam room. We were borrowing a phone from a connected nephrology clinic because new service was slow to be installed after Hurricane Katrina. We tried walkie-talkies and they proved to be worthless. The owner's 13 year old son came and installed AOL instant messenger and we communicate via AIM to this day! The office is an extremely quiet work area.
g. Measurement of the Success of the EHR Implementation Plan and Staff Training: The success of the EHR was to be operational from day one and this goal was met. The nurse practitioner learned how to do billing and the goal was to have income from third party insurers within 90 days. The first check arrived just at 90 days. Since then the value of attending the e-MDs User Conference has also translated into success because it has allowed the clinic to learn multiple new areas of the system, share with other users and learn from their experiences, and then to bring that knowledge back to the clinic and implement elements that are of value.
h. Model Used For Supporting Users During Post-Implementation Phase: Supporting users during the post-implementation phase is done by brief 5-15 minute staff meetings weekly.
i. Lessons learned: Do not try this 72 hour speedy implementation at home! It can be done, but takes long hours and can be very stressful. Where possible, try to have staff who are familiar with using an EHR.

Information Technology Support: IT Support

a. Responsibility for Integration and Set-Up of Interfaces and Testing and the Interfaces Chosen: The nurse practitioner owner was responsible for the integration of interfaces and testing. She worked directly with e-MDs to set up and test the interface and to learn how to customize the system, understand customization options, and handle exceptions. No initial database was needed due to being a new clinic. Interfaces include a lab results feed which incorporates data in a structured manner.
b. Purchase and Installation of Hardware to Support the EHR: The nurse practitioner had 3 weeks to purchase and install the hardware. She contacted Dell and HP Computers to meet the requirements of the e-MDs. She received 2 quotes and chose the Dell option. Digital Network Solutions came to the office and networked 3 workstations to the server. A printer and scanner were networked to the system.
c. Monitoring and Evaluation of Participants and How They Fulfilled Their Roles and Responsibilities: Once the hardware was networked, the nurse practitioner installed the software and use web training sessions with the e-MDs support team. Within 24 hours, the clinic opened and patients were entered into the system. Since the network was fairly simple, monitoring is less of a complex affair. Customization was done by the nurse practitioner.
d. Finding IT Partners and Support: How did the practice find IT partners and/or support? Was your IT support provided in-house or outsourced? What were the hardware and other costs? Describe your success and lessons learned: The practice used Digital Network Solutions on an as needed basis for networking support. IT

support was calls to e-MDs by the nurse practitioner. The hardware costs were approximately $13,000. Software costs were $12,000. The nurse practitioner paid approximately $500 to network the system. The budget for the EHR was $25,000 and the success was getting very close to this amount. The lesson learned: choose an IT group with experience with the EHR. We learned the installation together.

e. Did the actual IT cost exceed initial expectations? The actual IT cost did not exceed initial expectations.
f. Lessons Learned: This fast paced process worked for the post-hurricane disaster scenario but the stress level was high. Having experienced partners is also very valuable.

Disaster Recovery

a. Provide as an appendix your recovery from your HIPAA Security Rule Manual: Please see Appendix attached.
b. Disaster Recovery Plan Testing: The nurse practitioner verifies the backup database on an annual basis. The total recovery plan was utilized on May 13, 2006. Two days of data were lost during an upgrade and the entire database with a complete system restore was done at that time. In February 2010, construction outside our building severed internet connections. Two days of no connection was easily handled using the dated health summaries and backup phone message system.
c. Describe what you confirmed and/or learned from this test: This was a real loss of data when the nurse practitioner was out of town and my nurse was doing the upgrade. Ensuring that qualified staff runs upgrades is important.
d. Lessons learned: Verify a good backup database before proceeding with any changes to the system. Ensure that you have a consistent backup plan and ensure you anticipate the unexpected. For example, in December 2008, a water pipe broke at the adjoining primary care providers office flooding ¾'s of the building with 4-6 inches of water. No damage occurred to our network. All work stations and server are now maintained 8-12 inches for the floor and the server is on top of a desk.

Vendor/System Selection

Technology/Purchase Selection:

a. Selection Criteria and Tools, Evaluation Process: The nurse practitioner had used the e-MDs software at her previous clinic. With a 3 week time span, there was no time to evaluate other vendors. No demonstration scripts or demos of the products were requested.
b. Identify the product(s) your organization selected: e-MDs Solution Series from e-MDs, Inc. was selected. Solution Series is an integrated EHR and PM system.
    i. Identify the final number and/or products that were demonstrated: There was only one product in the process.
    ii. Include reasons vendors may have been automatically exclude or included: All other vendors were excluded due to time constraints. e-MDs was the safest choice because the nurse practitioner had used it in the previous clinic.

iii. Specifically address the rationale behind the selection (i.e., the ability to improve workflow, improve patient care, improve provider or staff satisfaction or have a net financially positive effect.) The selection of e-MDs was to have a net financial positive effect on a new diabetes clinic that was starting an electronic record from the onset.

c. Identify the decision makers in the selection process and their specific roles: The nurse practitioner was the sole decision maker.
d. Outline the timeline, budget and work involved in the selection of your software: The timeline was very simple after the determination to open the clinic was made:
   - Negotiate software license cost and submit contract.
   - Order hardware from Dell within one week.
   - Once equipment present, have Digital Network solutions install connectivity of network.
   - Load software day prior to opening clinic.
e. What had the greatest non-financial impact on your decision to select one vendor over another? Choosing e-MDs was going to decrease the stress level of the nurse practitioner in opening the clinic because she already knew the charting and scheduling system so the learning curve would be minimal. She contacted her previous clinic and they declined to help with teaching the billing system at all.
f. Lessons learned. Evaluate other systems is something you can do when time is a luxury.

Interfaces

a. In-house devices used in your specialty (i.e., spirometry, ultrasound, digital x-ray, spot vitals, etc.):
   - Spirometry: We used in-house devices for spirometry. Inhaled insulin was removed from the market and we longer use this interface.
   - We download insulin pumps and glucose meters into the EHR.
   - A Card Scanner is used for insurance cards.
b. External clinical services, such as laboratories, pathology, radiology, pharmacies, etc.:
   - Lab Results: We used a Labcorp interface at first but changed to Quest Labs. Spot Vitals interface was attempted but did not work due to interferences of meter download software.
c. Was all the functionality in place at the time of purchase or were certain features promised in future upgrades? All functionalities I needed were in place at the time of purchase (2005).
d. Lessons learned: Spot Vitals was a desired interface but we needed glucose meter and insulin pump downloading was more important to the practice. We learned that interfaces from one vendor can interfere with those of another and thus had to choose a specific one of greater value. The insulin pumps and glucometers are now downloaded at the front desk by the receptionist. This was a time saving adjustment and the nurse practitioner reviews the data with patient face to face.

Functionality: In Use

Functionalities Used and Benefits: The clinic uses almost all the functions in e-MDs. Some of the highlights are:

- e-Prescribing: Being able to eliminate paper prescribing processes has been of benefit to patients in terms of getting their scripts filled. They are impressed by this and the refill request process through the electronic network. Even without e-prescribing, some of the other features of the prescribing system such as interaction alerts are important.
- FastForms: The system includes a "bubble sheet" intake form that patients fill out in the waiting room. These are scanned and then populate the review of systems (ROS) in the chart. This assists in terms of getting patients to enter information that is then structured data in the chart and saves data entry time.
- FaxServer and DocMan: These components in e-MDs Solution Series are utilized for incoming and outgoing faxes and documents. They are what helps the system be completely paperless with the attendant benefits of that. The faxing functionality also makes fax management and routing between staff members much more efficient than handling paper.
- Integrated Billing: The billing system saves a tremendous amount of time by automating the charge entry process. There are also cost savings because of the reduced reliance on paper super bills. Using electronic filing also saves time and has a positive impact on the revenue cycle.
- Patient education handouts: These are built into the Chart. Handouts are given to patients regularly because the chronic condition of diabetes requires repetitive educational points.

Lessons Learned: Technology does not replace every process and human factors come into play which requires us to have backup "systems in place". For example, some patients have difficulty completing the ROS forms and the staff will then ask the questions directly or help the patient complete the document.

Functionality: Not In Use

Functionalities Not Used:

- e-MDs Patient Portal: A portal allowing access for patients is available. The nurse practitioner and staff decided not to implement it. This was because there is an extra cost associated with the portal and there did not appear to be a great deal of patient interest.
- Other: As a small practice there are other features that we know exist which may be of benefit but have not had time to implement simply because we need to find the time to do so.

Value

Success in Meeting Business Objectives: The Diabetes Center, PLLC has achieved the objective of implementing an EHR from day 1 despite an extremely tight timeline, and we have managed to keep things relatively simple so we could manage the entire system ourselves. The clinic has continued to progress with functionality as upgrades become available. The clinic has also achieved a primary objective of being successful financially, proving that the business model is sustainable despite all the attendant challenges with getting going, credentialing, staffing, etc. Receiving the Nurse Practitioner Entrepreneur award was not an objective, but was a wonderful validation of our success. No formal

research has been done in terms of objectives, particularly since there was no comparison to a time without EHR. Lessons learned: Keep it simple: For example, the network was installed with a hardwired system with PCs instead of wireless with tablets. The wireless system at the time could have proven just another source of technical challenges that might have delayed the timeline.

Success in Meeting Clinical Objectives:

i. Clinical objectives: Many of our objectives are built around the patient experience and ensuring that they are informed participants in their clinical care.

- Patient Communication Enhancements: We have been able to enhance the direct face to face interaction and data sharing with the patient in an office setting: The provider meets the patient in the exam room and then escorts them to her office. The lab work and clinical data are reviewed with the patient utilizing Flowsheets. Printouts of the Flowsheet and Health Summary are given to the patient. Patients and other providers have appreciated the data and information.
- Telephone response time of 24 hours on business days. We have achieved this. Phone messages are documented and routed via TaskMan to the nurse and nurse practitioner. Messages are completed and attempted responses sent to the patient before 24 hours has passed.
- Access to Patient Information: An EHR with remote connectivity set up makes this objective easy. For example, the provider will remote into the system to complete prescriptions and other messages if she is not physically at the office that day.
- Wait times less than 20 minutes of the scheduled appointment for routine visits barring any extreme emergencies: Patients expect to be seen in an efficient manner. The office does not overbook and has an efficient schedule to decrease waiting time.
- Most advanced FDA approved diabetes care in the area: No other clinic is totally focused solely on diabetes. Ipro, Insulin pumps, and realtime sensors are able to help patients advance care.

ii. Other objectives:

a. Provider satisfaction: Yes, this has been achieved, even after the stress of starting up! The staff leaves the office for lunch at noon and for home at 5pm. Phone messages, e-mails, and patient visits are all completed and signed off. The nurse practitioner keeps the same hours except for 30-45 minutes administration time at the end of the day. Owning my own successful and growing business is also tremendously rewarding.

b. Patient satisfaction: Patients verbalize satisfaction with wait-times. Our office is co-located with a 3 provider primary care clinic and 2 surgeons. The patients comment on how short a wait-time they have and how well we keep on schedule. Being able to show patients information about their health and to provide them with educational

handouts at the time of service has also been well received. Simply providing more convenient access to care is also a major item.

c. Descriptions of transformed processes:
    i. With the advent of e-prescribing, refills and new prescriptions are offered to all patients to be electronically sent or faxed. Patients are impressed when they do not have to drop a prescription off and then wait for it to be filled.
    ii. Although this was not a transformation because we started that way, being a paperless practice is much better than paper-based practices experienced in the past.
d. Measures of quality, process efficiency, productivity, customer service:
    i. The clinic has submitted to CMS for increased reimbursement by completing e-prescribing documentation. PQRI for 2009 and 2010 have been submitted for the Diabetes Measures Group.
    ii. Collaborative documentation is a requirement by the Mississippi Board of Nursing. Monthly 20 charts have to be reviewed by the physician and nurse practitioner. This is completed by allowing remote access by the physician to the EHR. This is a tremendous time saver for travel for both providers.
e. Describe how your EHR implementation aligns with CMS's definition of meaningful use as currently understood: Using e-MDs for the last 4 and ½ years, I feel very close to the successful definition of meaningful use. Five months ago, we implemented e-prescribing and added formulary verification. We have reported on CMS's e-prescribing and PQRI reporting for 2009 and 2010. My staff and I have attended 1 meaningful use workshop and 2 teleconferences and feel well positioned with respect to meaningful use. Patient portal access has recently been added.

iii. Lessons learned: In using an EHR from the start of a new clinic, the biggest value is in keeping my overhead down. Employees are your biggest cost and as a one provider practice with 4 employees we have an efficient process for taking care of patients with diabetes.

Value Improvements:

Lessons learned: Since the implementation of my EHR, we have continually strived to add features and build efficiency as upgrades have occurred. Each year we attend the e-MDs users conference and find features that we want to add or build on. The lesson learned is sometimes there are glitches when you are the first in your area to add e-prescribing. We experienced a lot of difficulties in the settings of our router for e-prescribing. It took several weeks to identify the issues and required a CISCO router specialist. I have since shared the problems we had with other providers in the area who have e-MDs. Being an early adopter is not always easy.

Value: External Networking

The Diabetes Center, PLLC was asked to be the first outpatient clinic to access the Mississippi Community Health Information Exchange. We are now able to access lbs, ER visits, and hospitalizations for our patients. We have been asked to be a pilot project to link our database to the system. Currently we are pulling the data from an internet based website. Our next step is to link our data and our patient database to the system. It looks like this process will be slow and potentially costly.

Currently the clinic uses a Quest lab interface for lab results. Mississippi Community Health Information Exchange is utilized for lab results from 3 major hospitals in the community.

e-Prescribing connectivity with formularies is in place and connects us with local pharmacies. This also gives us benefits information as well as access to the patient medication history including prescriptions written by other doctors.

2009 and 2010 PQRI Diabetes Measures Groups have been reported. No other practices or immunization registries are utilized at this time.

A comparison of diabetes outcomes from the clinic to state and national outcomes for diabetes is listed in the appendix.

Lessons learned: The clinic utilized the Labcorp lab interface. It was not financially feasible to maintain the cost of support for this interface because not many of our patients utilized this particular lab. The connection of the labcodes to our diabetic flowsheet has been challenging. We maintain a flowsheet for every patient with diabetes and the automatic connection of the data is critical.

Value: Costs and Benefits

a. Regarding implementation costs and benefits, detail how you funded the purchase and implementation of your EHR (i.e., self-funded, grants, outside funding sources): The entire purchase in October 2005 was self-funded. I used no outside grants or funding sources.
b. How many dollars were allocated? I used a $25000 loan to purchase the hardware, software, and installation. I obtained a $50,000 HELOC to pay for staff and other equipment needed to start the office. I spent 95% of this on the hardware and software and 5% on implementation. My costs were low because I did a lot of the software installation myself working with e-MDs. There was no infrastructure in place and data lines were dropped and activated by my technical support.
c. Any financial benefits realized to date that offset that investment (e.g., decreased or omitted chart pulls, ability to participate in payor pay-for-performance initiatives): Four employees are utilized to keep costs down. No charts are ever pulled. PQRI has been submitted. No other payor pay-for performance initiatives.
d. What would you do differently in allocating funds throughout the implementation (e.g., vendor suggestions vs. what was discovered as best the practice)? The vendor suggested company for the loan was a much higher interest rate. I should have shopped around for better financial options. I actually had to charge it to

my business credit card and then pay that off with the hardware/software loan. Time was very restricted to get the equipment installed and software loaded in the 3 week time frame.

e. Lessons learned: I was able to pay-off the Hardware/software loan and the HELOC within the first year of my clinic being open. This was a key step in my financial success of the clinic.

Lessons Learned

Lessons Learned: Success Factors

I attribute the success of The Diabetes Center, PLLC with being an early adopter of technology. I am light years ahead of other small medical practices in my area. The circumstances of opening after Hurricane Katrina did not allow me the luxury of time to examine all the available options in implementing my EHR. I did not have time to agonize over each decision. I learned the billing software myself as the provider. This was key to the financial health of the clinic. I then trained a 19 year old assistant to do the majority of the billing. I never hired an office manager and maintained an extremely flexible and eager staff to implement changes to the software.

Lessons Learned: Hindsight

I did not know that it took months to become an approved provider for many insurances. I had to fight as a nurse practitioner to become credentialed with several third party payers. There were no other nurse practitioner owned clinics in my town to ask advice. I had no billing experience and that would have helped tremendously. I learned by watching my denials and figuring out what was needed for successful claims. It took a long time to get confirmed provider numbers and electronic remittance working smoothly. I did not have anyone else in my area using the software that was willing to help me.

Lessons Learned: Advice

a. In organizing the effort, in purchasing an EHR.

I love to encourage other clinics to implement EHRs. I allow any other clinic to come spend some time in my clinic and see how e-MDs has worked for me as an NP-owned clinic. I highly recommend visiting as many clinics with active EHRs in real settings as possible. I believe we need to share with each other how to be successful with health information technology. I have worked extremely hard to have a great communication environment with the patient. After the physical exam, the patient comes to my office and we sit face to face and look at the flowsheet, meter downloads, or pump downloads together. I can document my notes while looking at the patient. How you set up your patient encounter is key to patient satisfaction. The key is for the provider to be comfortable with the software. I did not have a lot of time for organization. Three weeks is too short a period to try to implement but it worked for my small clinic.

b. In achieving the necessary technical performance.

My staff and/or I attend a user's conference every year to keep updated on current performance and to see what is coming in the future. Identify new adaptations to the software and implement the changes one at a time. I evaluate the new ideas with my

staff and allow input from their perspective to see what will help us make a more efficient and successful patient experience.

Future Plans

Future Plans: Expansion

Patient Portal has recently been added. We started by asking our patients if this is an appealing option to them. Once approved by the patient, they can share lab results and appointments. We currently give patients a written health summary at the time of their visit. Patients can view and update health summaries, schedule appointments and request refills and referrals, via any internet connection.

Future Plans: Keeping Current and Connecting to Others

The practice will expand the use of Mississippi Community Health Information Exchange. A live bi-directional interface is the proposed step. Increasing the sharing of visit information and labs is key to the patient. This process has already saved us so much time in accessing other hospital's labs. The clinic is currently a chosen site for this implementation.

1. APPENDIX: Return on Investment (ROI) Table

	EHR SOFTWARE	
	a. EHR software (licenses for providers, users and enterprise).	$7,575.50(1)
	b. EHR-related software (scanning, voice recognition, report writer, etc.)	$0.00
	c. EHR software billed yearly (e-prescribing, CPT/ICD, medical necessity, etc.)	$0.00(2)
	d. Interfaces (labs, PM system, devices, hospitals, etc.)	$600.00(3)
	e. Yearly EHR and EHR-related software maintenance/support.	$1,599.00
	f. Yearly Formulary Fees	$240.75
HARDWARE		
	a. Local servers (for EHR, images, etc.)	3,967.56
	b. EHR user devices (PCs, tablets, laptops, scanners, upgrades to existing PCs, etc.)	5,589.67
	c. Networking equipment (racks, switches, wireless, cabling, UPS, generator, etc.)	900
	d. External connectivity (internet, T1 lines, etc.)	1200
	e. External services (hosting, disaster recovery, data center, etc.)	350
ADDITIONAL COSTS		
	a. Training costs for EHR and EHR-related software (I.A. and I.B.)	$200.00(4)
	b. Ancillary costs related to training (travel, temporary classrooms, etc.)	1000
	c. Technical support.	Included in EHR (e)
	d. Server software (SQL, Windows, backup software, faxing software, etc.)	$907.60(5)
	e. Additional personnel costs directly related to the EHR	400
	f. One time implementation costs (scanning, temporary services, etc.)	$1,824.65(6)

(1) Included all initial EHR and PM software licenses, shipping, AMA CPT license fee etc.
(2) AMA CPT licensing;
(3) Subsidized.
(4) 8 hours internet training in 2006.
(5) $260 initial installation, $647.60 (SQL upgrade)
(6) $995 (12 hours implementation support 2005), $250 (Electronic claims setup 2005), $529.65 (e-Rx and Formulary Setup 2009).

Total Annual Maintenance:
2005-2006: $1,899: $1,599 (software) plus $300 (lab)
2006-2007: $2,499: $1,599 (software), $300 (lab), $250 (clearing house)
2007-2008: $2,499: $1,599 (software), $300 (lab), $250 (clearing house)
2008-2009: $2,499: $1,599 (software), $300 (lab), $250 (clearing house)
2009-2010: $2,620.43: $1,599 (software), $300 (lab), $250 (clearing house), $171.43 (taxes)

No costs incurred annually for prescription pads, transcription, or maintaining a physical patient chart

2. Appendix:
Comparison of outcomes from The Diabetes Center, PLLC to outcomes of state and national levels

I contacted Mississippi Information & Quality Healthcare. I was informed they had no data on average A1c, LDL or hypertension data.

I was able to reach Blaise Mathabela, MS, Epidemiologist from the Texas Diabetes Program/Council.

Here is the information I received:

HgbA1c >9%

There is not any Texas data on average A1c for persons with diabetes in Texas. There is HEDIS data on persons with diabetes with poor A1c control (HbA1c > 9.0). In 2009, 56.0% of persons with diabetes had an A1c >9.0 in Texas, 28.4% in the US, (NCQA Quality Report). This is the percentage of members 18 through 75 years of age with Type 1 or Type 2 diabetes using the HMO who had their most recent HbA1c level greater than 9.0 percent during the past year. Lower numbers are better for this measure. Attached is the link to the report:
http://www.opic.state.tx.us/docs/611_guidetotexashmoquality2009.pdf

My data for A1c >9.0% is 24%

Blood pressure <130/80

In 2009, 28.7% of persons with diabetes in Texas had blood pressure reading at less than 130 mm Hg systolic and 80 mm Hg diastolic during the past year, 33.4% in the US (NCQA Quality Report).

My data for blood pressure <130/80 is 51.4%
http://www.opic.state.tx.us/docs/611_guidetotexashmoquality2009.pdf

LDL

In 2009, 30.5% of persons with diabetes in Texas had an LDL cholesterol less than 100 during the past year, 45% in the US (NCQA Quality Report).

My data for LDL < 100 is 53.79%
http://www.opic.state.tx.us/docs/611_guidetotexashmoquality2009.pdf

I wanted to follow-on with additional information from another AHRQ source that you might find helpful. Each year, AHRQ publishes a National Healthcare Quality Report (NHQR) and a National Healthcare Disparities Report (NHDR). Here is a link to the diabetes section of the NHQR: http://www.ahrq.gov/qual/nhqr09/Chap2.htm#diabetes. However this data was from 2003-2006 and I did not find it to be comparative.

3. Appendix: Disaster Recovery/Backup

January 2, 2010

The Diabetes Center, PLLC
3099 Bienville Blvd
Ocean Springs, MS 39564

Contingency Plan

A. Data Backup Plan
The Diabetes Center, PLLC conducts three methods of database backup in a 24 hour period.
The first is an automated backup of the e-MDs patient database on the server every 24 hours.
The second is an automated on-line backup.
The third is a manual portable drive backup done each morning that can be removed from the office by the nurse practitioner.

B. Disaster Recovery Plan
In the event of a disaster, the available source of backup will be utilized and reinstalled on a server. Health summaries and paper charts will be utilized until the system is live.

C. Emergency Mode Operation Plan
A one page dated health summary on each patient is maintained in binders at the nurses work station. These will be utilized if there is no access to the database. Once the system is restored the data will be entered. Phone messages will be documented on duplicate carbon paper.

Testing and revision procedure will be done on an annual basis

KC Arnold, ANP
Nurse Practitioner/Owner