



Davies Ambulatory Award – Community Health Organization (CHO)

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- Core or Menu Item: Menu Case Study – Patient Safety Enhancements

Executive Summary:

Community Health Centers Inc.'s (CHC) mission is to provide quality and compassionate, primary and preventive medical, dental, and pharmaceutical services to Central Florida's economically and culturally diverse communities. CHC is a patient-oriented organization, providing special assistance to the medically underserved, medically uninsured and at risk populations of Central Florida. Established in 1972, Community Health Centers has 11 medical and dental centers in two counties serving 53,610 patients annually. CHC also has the privilege of having five internal pharmacies housed in its largest community centers. Management of patient medications is an integral aspect of a comprehensive electronic health record (EHR). Ensuring this function operates seamlessly for both the provider and patient is an important element of the patient visit. E-prescribing can be a challenge to implement. Nonetheless, CHC was determined to provide the technology to its pharmacy and provider groups. The goal was to improve patient safety and quality of care by providing care givers with visibility into real-time patient information to help manage prescribing needs and habits, the implementation of alert and warning systems at the point of prescribing and eliminating prescription errors due to ineligible writing and verbal miscommunication. CHC wanted to ensure all aspects of e-prescribing occurred without being cumbersome for the providers and that pharmacy staff was included as a part of the patient centered health home initiatives, offering both convenience and affordability for the patients. These efforts, combined with the safety features of the EHR, began to reflect in positive patient outcomes across the organization.

1) Background Knowledge

E-prescribing, as with any new technological development, comes with advantages and disadvantages. One of the major benefits of implementing an EHR is better management and monitoring of patient medication administration via e-prescribing. Other aspects include enhanced patient safety, increased access to patient medication records, and improved pharmacy workflow. Some of the disadvantages to consider are varying choices with new e-prescribing applications and change management of pharmacy workflow.

With the initial go-live of the EHR in 2009, there was no plan in place for the five internal CHC pharmacies to be set up on an e-prescribing platform. The original EHR solution for pharmacy management was for the provider to electronically create the prescription and choose the “fax print” to pharmacy option. The fax would then print in the pharmacy, thereby not tying up the fax lines.

In filling approximately 10,000 prescriptions a month, the practice soon realized the shortcomings the solution was creating. It was producing an enormous waste of paper causing the mismanagement of prescription fulfillment as well as exposure of patient-sensitive information through the faxing process. Alongside this, the practice was not leveraging the potential benefits gained by having the Pharmacy staff working within the EHR instead of a workaround process.

2) Local problem being addressed and Intended Improvement

After the initial fax-paper-workflow failed, the organization researched a better method to automate the medication administration process. They worked with the EHR vendor eClinicalWorks (eCW) and Kalos the pharmacy software vendor to create an interface. The process was time consuming and costly, and in the end the solution proved to provide only a partial solution. From the start, implementation caused problems with the interface dropping connectivity. Providers were not receiving a confirmation message notifying them that the prescription transaction was successful. Patients would attempt to pick up their prescription at the pharmacy and none would be available. This created extra work for the pharmacy staff (contacting providers), providers (resending the prescription) and IT staff (maintaining the interface). The entire staff was frustrated.

This dissatisfaction prompted the CHC leadership team to make the executive decision to look for a complete solution. The problems the solution needed to resolve included:

- Improved patient safety through prevention of errors and active alert monitoring.
- Improved clinical benefits and attainment of self-management goals.
- Increase patient convenience in filling prescription and medication compliance.
- Improved access to patient’s medical and prescription information in the HER.
- Improved efficiencies in pharmacy and provider workflow.

After much research and careful consideration, the decision was made to enable in-house pharmacies as Surescripts providers. Though this solution came with a higher price tag, the decision has proven to have added real value in resolving the identified problems. It is also paying off in provider, staff and patient satisfaction. Overall, it was accomplished in three phases, with one additional phase planned for Q4 in 2014.

3) Design and Implementation

Phase I: The transition to a Surescripts-enabled workflow meant the pharmacy could only receive prescriptions providers sent. If a patient needed a refill, the pharmacy staff requested them manually. A telephone encounter (TE) was created and assigned to the physician and he or she would refill via the TE. After several months, at the urging of the CMO, Pharmacy Director, and providers who were growing accustomed to the ease of prescribing to outside pharmacies, CHC leadership approved pharmacy staff to begin sending e-refills to the providers.

Phase II: The second phase was centered upon the completed transition of the refill cycle through the electronic exchange. This additional automation created efficiencies through time savings while reducing workflow tasks. Providers now can open the e-refill request jellybean, refill the med and communicate any clinical notes for pharmacy staff before sending the e-request.

Phase III: This phase began in the fall of 2013, involving a corporate initiative to educate and enforce to patients and providers the benefits and convenience of using CHC pharmacies. The goal was to increase patients knowledge of understanding the advancements made with prescribing and the advantages of having CHC as their primary pharmacy. To accomplish this, signs were placed throughout the waiting rooms, messaging was added to appointment cards and throughout the patient touch points from check in to check out. Because of the improved automation, patient's prescriptions could be ready by the conclusion of a visit. To improve patient satisfaction CHC began offering mail order for patients physically unable to pick up prescriptions in person. The pharmacy accepts most insurance companies and offers 340B pricing which allows for medications at significantly reduced prices. As a result, patients can obtain affordable medication. CHC also participates in a variety of assistance programs to ensure patients receive the medications they need regardless of their ability to pay.

Phase IV: Scheduled for Q4 2014, CHC will utilize the RX hub within the electronic software. This will allow CHC providers to obtain the patient's medication record from all pharmacies, filling prescriptions paid by insurance carriers to provide further transparency in the holistic care of the CHC patient population.

Since implementing this phase of pharmacy engagement in 2013, the practice has steadily increased prescriptions and is set to surpass prior figures. *(See Figure 1 in Appendix)*

4) How was Health IT Utilized

The Surescripts network connects providers in all 50 states through their choice of e-prescribing software to the nation's leading payers, chain pharmacies, and independent pharmacies. Surescripts products supply healthcare providers secure, electronic access to prescription and health information saving their patients' lives, improve efficiency and reduce the overall cost of healthcare.

Upon the licensing of providers into eClinicalWorks software, CHC always chooses to enable each eligible provider through Surescripts. No additional hardware or software was required to begin e-prescribing as connectivity is handled within the eCW data centers. Providers become eligible on the date requested.

Formulary checking: Another time-saving task within the HIT technology is formulary checking. Each day a batch job from within eCW is run automatically to check for patient medication eligibility. When a provider selects a medication, they acquire a visual response of their choice and where it falls in the patient coverage. Having this information at their fingertips helps the provider make the right decision for the patient at the point of care, thus reducing the patient's wait time for their prescriptions, and ensures they are getting the best medication at the right cost. With over 400 insurance companies all with multiple formularies, prior to the EHR the provider would have to both go to the internet and search the formulary before prescribing or refer to an out-of-date paper spreadsheet. *(See Figure 2 in Appendix)*

5) Value Derived/Outcomes

By design all components of CHC's e-prescribing solutions are based on patient safety, patient compliance, and patient and provider efficiencies. Solutions are also based on convenience and affordability. Value added outcomes from implementing e-prescribing include:

Improved patient safety through prevention of errors and active alert monitoring. Patient safety initiatives are completed by provider-driven interaction checks that are incorporated into the best practice workflow. CHC's EHR supports complex interaction checks for drug-to-drug, drug-to-allergy and drug-to-food. This is actively completed on each prescribed medication and is a key part of a successful solution. In addition, prescribed medications for its 65 and over population are checked against the BEERS Criteria List from the American Geriatric Society. *(See Figure 3 in Appendix)*

Improved clinical benefits and attainment of self management goals. CHC's Diabetic patients were better controlled as a result of e-prescribing and physicians have the tools to quickly identify in the EHR if a patient is currently taking their prescribed medication. *(See Figure 4 in Appendix)*

The number of patients who are prescribed and taking a controlled medication for their asthma has also improved. *(See Figure 5 in Appendix)*

The number of patients who are prescribed and taking a lipid lowering medication has also improved since 2012. *(See Figure 6 in Appendix)*

Additionally the HEDIS outcomes have improved since 2011. *(See Figure 7 in Appendix)*

Increase patient convenience in filling prescription and medication compliance. In January 2013, CHC's internal pharmacies were only receiving 27% of prescriptions written by the providers housed in the same facility. This percentage decreased to 23 % when factoring in the total number of prescriptions written across all facilities. This 23% meant that our facilities without pharmacies on site were not educating their patients regarding the benefits of using the CHC pharmacy. *(See Figure 8 in Appendix)*

Data from May 2014 demonstrates the capture rate has climbed to 54% at sites with in-house pharmacies, and an increase to 45% for all sites sent to CHC's pharmacies. *(See Figure 9 in Appendix)*

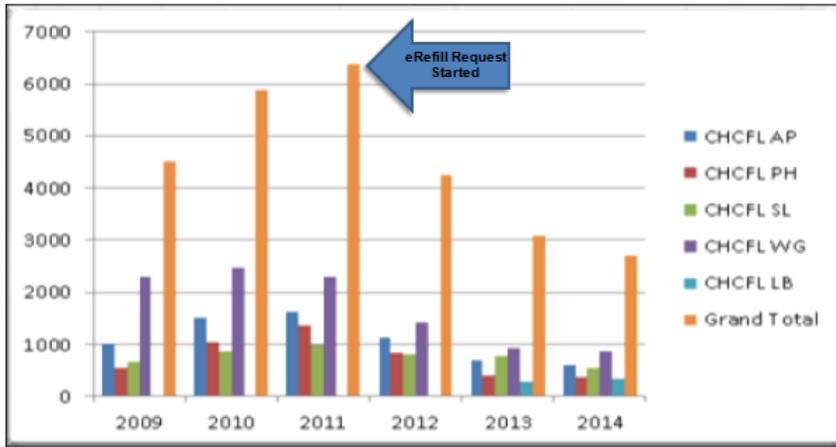
The service provides a significant no hassle convenience factor for patients. Also as part of the initiative, CHC assisted patients in improving compliance with their medications by filling prescriptions from specialists referred to CHC patients. E-prescribing has led to reduced lost paper prescriptions, decreased patient wait times and multiple phone calls. In the past year CHC has filled approximately 3,000 prescriptions from specialists. Patient's medications lists are compared with the prescription from the specialist. If the medication is not listed, the pharmacy staff initiates a telephone encounter to the patient's primary care giver to update the list.

Improved access to patient medical and prescription information in EHR resulting in improved efficiencies in workflow. The EHR has allowed CHC to trend provider prescribing habits. The data assists management in forecasting future ordering and expansion of the pharmacies. In 2013, a new pharmacy was opened in the Leesburg facility. Data derived from the patient population at the site helped with decision making on pharmacy stock.

Patient safety measures are enhanced by eCW functionality, updating the patient's current medications in the interactive clinical wizard view for the provider in real time. This is crucial for CHC patients if they visit the dentist, optometrist and family provider all in one day. Each provider can see the new medication without opening each progress note or relying on the patient to inform. Figure 10 in the appendix illustrates an appointment with dental in the morning where a new prescription was ordered. It is immediately available for viewing for the next provider. Additionally, the provider has the ability to hover over the medication to the start date for a comprehensive overview of medication history. *(See Figure 10 in Appendix)*

CHC has also seen value added outcomes related to a reduction in the total number of telephone encounters generated for medication refill requests from patients. The telephone encounter process includes providing details of the medication being requested which is then sent to the care team to have the last visit date populated (as a visual for the provider), then it would be reassigned to the provider to generate the refill. It is a multiple step process. In 2012, our pharmacies were enabled for electronic refill requests. This meant the pharmacy could now, upon patient request, generate a refill request electronically from the pharmacy software directly to the providers for processing. Upon opening the eRefill request, the patient information and last visit auto populates (without intervention from staff). The reduction of telephone encounters being created post implementation of the eRefill request functionality saves staff, provider and patient time and improves accuracy with medication refills. There is still a current need for telephone encounters for refill purposes in certain circumstances. This includes controlled medications, changing pharmacies, prescription authorization and clarifications.

Reduction in Telephone Encounters due to eRefill request from In-house Pharmacy



ROI on Decreased Telephone Encounters

2009	2010	2011	2012	2013	2014
4514	5899	6393	4263	3069	2690

2009-2011 = 16,806 total vs 2012-2014 = 10,022 total = **5784 decrease in TE**
 Assumption: TE created by Pharmacy staff with refill in the subject line

- Average salary to process a TE: Pharmacy Tech, Care Team and Provider = **\$80 per hour**
- Average time to process a TE/eRefill: 15 minute (pre EHR) – 3 minutes (post EHR) = **12 minutes saved per TE/eRefill**
- Surescripts costs -\$25.00 per provider/per month (*n/c for dentists*) = **\$36,000 per 3 year period**
- Kalos costs - \$.20 per eRefill request = **\$1156 per 3 year period**

ROI on Decreased Telephone Encounters

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4514	5899	6393	4263	3069	2690

2009-2011 = 16,806 total vs 2012-2014 = 10,022 total = **5784 decrease in TE**
 Assumption: Created by Pharmacy staff with refill in the subject line

- \$80/60 minutes = \$1.33/minute x 12 minutes = **\$16/hour**
- 5784 TE x \$16.00 = **\$92,544 savings**
- Surescripts + Kalos cost = **\$37,156 cost**
- Approximately **\$55,388 increase in ROI over a 3 year period**

6) Lessons Learned

Underestimation of benefits of e-prescribing. CHC did not initially advocate for this technology with the implementation of the EHR. As a result, the functionality of the EHR was compromised and underestimated the needs of the patients in ePrescribing to internal pharmacies. Implementation of an EHR is an expensive undertaking for a Community Health Center. The practice attempted to replicate a paper prescription process in an electronic format, without considering workflow redesign to blend the process with the technology.

Engagement of Pharmacy staff. By not focusing on Pharmacy workflow as part of the initial go-live project plan, CHC missed an integral opportunity to involve the patient centered health home model. Overall the practice did not allow for this important piece in treating the whole patient.

Patient education regarding new technology. CHC was challenged with educating the patient so they would no longer leave with a paper prescription. Instead the prescription would be transmitted electronically to the Pharmacy. Admittedly the practice could have benefited from involving the marketing department to increase patient awareness campaigns, promoting patient benefits of this new technology. Instead, information about e-prescribing was delivered at the point of care competing directly with the abundance of information supplied to the patient, minimizing this valuable option.

Use of multiple Pharmacies. Another challenge identified that CHC was unprepared for was the patients using multiple pharmacies for their medications. With paper prescriptions, the patients could pharmacy-shop for the best price. To support this electronically, additional system development was required. Provider education was required to assist in the workflow for choosing multiple prescriptions and modes (erefill/fax/print). CHC is continuing to improve this process where providers can now choose a common “send” button allowing them to select multiple medications and pharmacies/modalities of delivery (print/eprescribe/fax) with fewer clicks.

7) Financial considerations

To activate our providers with the required licensing for e-prescribing the cost is \$25 per Provider per month. Benefits to the organization for this investment include:

Improved patient safety through prevention of errors and active alert monitoring. From a risk standpoint, medication incidents have decreased by 97% percent since instituting ePrescribing.

Increase patient convenience in filling prescription and medication compliance. Reduction in phone calls/faxes to the provider for refill requests expedites the patient’s access to their refill, without having to wait for the request to go through manual processes before getting sent back to the pharmacy.

Improved access to patient medical and prescription information in EHR. No longer is there an extended waiting period to resend prescriptions. CHC's pharmacy staff has access to the patient record and can research questions if needed before reaching out to the provider.

Improved efficiencies in Pharmacy and Provider workflow. Reduction in phone calls/faxes to the provider for refill requests. CHC has received approximately 100,000 electronic refill requests, resulting in a cost savings in staff and provider time in preparing telephone encounters.

Appendix

2009	2010	2011	2012	2013	Jan-Jun 2014
109,000	105,000	104,000	104,000	124,000	80,000

Figure 1 – Increases to Prescription Volume

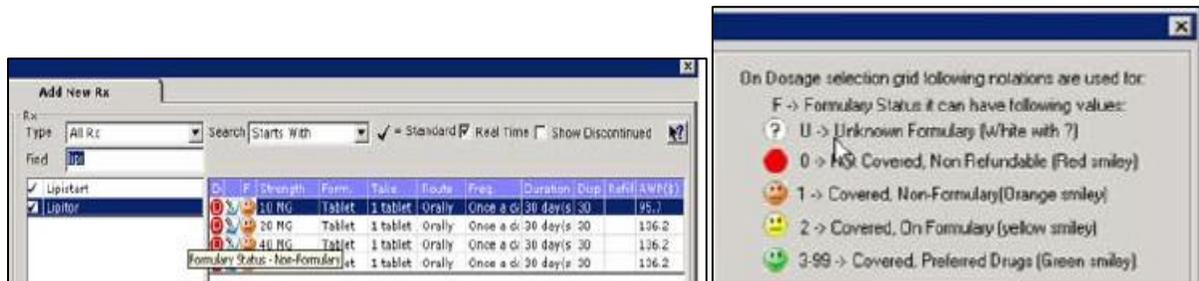


Figure 2 – Formulary checking in eCW



Figure 3 – Drug Interaction Checking in eCW

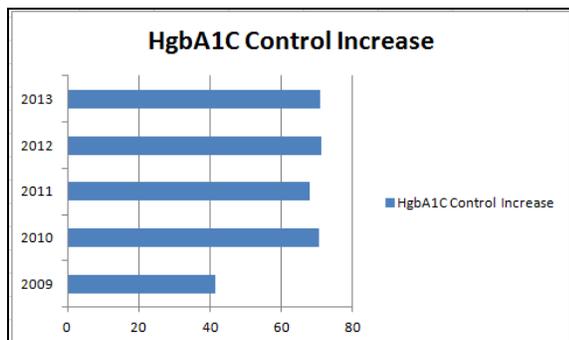


Figure 4 – Diabetic Patient Outcomes

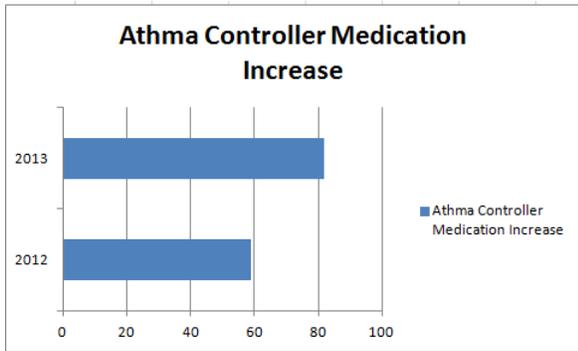


Figure 5 – Asthma Patient Outcomes

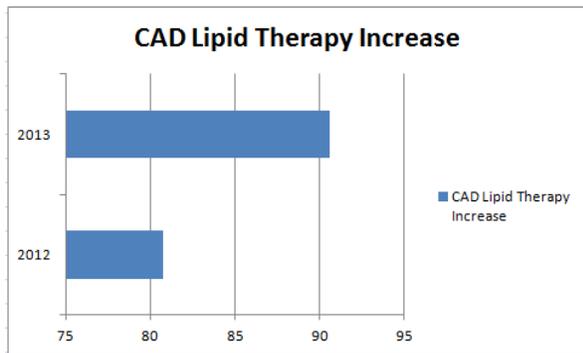


Figure 6 – Lipid Therapy Patient Outcomes

HEDIS Measure	HEDIS target	2011	2012	2013
High Risk Medications	Less than 5 %	10.7%	9.9%	1.7%
Blood Pressure Medication People with Diabetes	87.8%	85.2%	93.3%	94.2%

Figure 7 – HEDIS Measures Patient Outcomes

Jan-13			
	Total Prescriptions Written	Rx Captured	% Captured
Apopka	5992	1657	28%
Leesburg	5001	402	8%
Pine Hills	2535	1007	40%
SouthLake	3045	1114	37%
Winter Garden	3708	1369	37%
Total (inhouse pharmacy sites)	20281	5546	27%
Total (All sites)	24140	5546	23%

Figure 8 – CHC Prescription Volume

May-14			
	Rx Generated	Rx Captured	% Captured
Apopka	4900	2266	46%
Leesburg	3235	1507	47%
Pine Hills	3162	1841	58%
SouthLake	2253	1483	66%
Winter Garden	3878	2352	61%
Total (inhouse pharmacy sites)	17428	9449	54%
Total (All sites)	20768	9449	45%

Figure 9 – CHC Prescription Capture Rate

Plan:

Treatment:

Others

Start PreviDent 5000 Dry Mouth Paste, 1.1 %, as directed, Dental

Diagnostic Imaging:

Lab Reports:

Discontinue Medication:

Current Medications	Stop Date
Lisinopril 20 mg Tablet	
PreviDent 5000 Dry Mouth 1.1 % Paste	
Metfo	PreviDent 5000 Dry Mouth 1.1 % Paste, Sig: as directed Dental Start Date: 06/27/2014
Premarin 0.3mg Tablet	

Figure 10– CHC Safety Features