



***Davies Ambulatory Award – Community Health Organization (CHO)***

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- Core or Menu Item: Core Case Study – Return on Investment

**Executive Summary:**

Community Health Centers Inc. (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 and uninsured, and at risk populations of Central Florida. Prior to implementation of the organizations electronic health record (EHR) in 2009, CHC's services were restrained due to the constraints of the paper based system. The inability to exchange patient information among providers and track patient results, as well as medication intake made providing services to 53,610 patients a year challenging. Implementing an EHR resolved many issues and improved overall functionality at the point-of-care. Today, CHC is one of only a handful of FQHCs in the nation to have an integrated medical and dental EHR, be accredited by the Accreditation Association for Ambulatory Healthcare, as well as having 52 providers successfully attest to Meaningful Use Stage I. This was accomplished step-by-step throughout the implementation process and by advancing the clinical information system platform through executive support. Overall success was achieved by key individuals in the organization driving usability, adoption and ultimately acceptance of the EHR. Moving forward, innovation and expansion continues for CHC with the population that it serves.

## 1) Background Knowledge

CHC is governed by a Board of Directors and an Executive leadership team who are directly involved in providing strategic direction for the advancement of the EHR. In addition, both encourage quality improvement activities across the organization to improve efficiency and enhance patient care for the patient population.

In addition, CHC's Change Control Committee provides governance for alterations made to the EHR and all third party software supporting the clinical practice, reporting, and any associated processes. Membership in the committee includes the below leadership positions:

- Chief Medical Officer
- Director of Informatics
- Lead EHR System Analyst
- Chief Operations Officer
- Director of Regulatory and Compliance
- Director of Nursing

During the reporting year of 2013, CHC provided services to 53,610 patients with over 177,643 encounters. From the initial conversations about investing in an EHR, CHC wanted to implement an enterprise wide system. Consideration was given to the pros and cons of stability, productivity, growth, usability, commitment to the mission of FQHCs, and of course overall cost. A product was desired that had the ability to facilitate the expansion of quality care to patients. CHC believes patients should possess the capability to receive excellent care and attention, regardless of their capability to pay. Therefore, the integration of medical, dental, behavioral health and pharmaceutical services was deemed vital in the selection of an EHR.

## 2) Local problem being addressed and Intended Improvement

Providing the highest quality of care to the community has always been the main objective of CHC. The organization understood that transporting paper charts from one location to another would lead to extended service delays. For instance, if a patient was referred to a provider at another location, he or she had to wait at least 48 hours for the chart to be transported. This method led to a multitude of documents being lost and resulted in duplicates being created. To rectify and improve patient satisfaction, significant practice improvements were needed. A sustainable transformation would require an EHR solution providing critical information at the point of care, as well as outcomes reporting. Moving forward, the goals of implementing an EHR were motivated by the desire to become a community leader in population health and excel in providing value driven outcomes. Other target problems and associated goals included:

- **Management of paper records across the sites and care continuum** – Providers frequently had to manually transport charts from site-to-site. The practice was time consuming, sometimes delaying patient treatment by 7-10 days. As a result, the goal of implementing an EHR was the creation of an individual patient record, accessible 24/7 to the provider and the care team.
- **Accesses to timely patient information** – Staff printed excessive amounts of information requiring manual processing. This created the unwanted potential of accidental exposure of HIPPA protected information. Implementing an EHR allowed for the use of electronic data entry through structured data and on-line document management for coordinated care at all locations in a secured environment.

- **Management of claims denial process-** Many challenges arose when identifying the proper procedure codes to allow for the creation and submission of timely claims. In turn, the goal of EHR implementation is the automation of claim assignments with tracking capabilities.

### **3) Designs and Implementation**

From the start, CHC required an EHR system that could provide coverage to three main areas of services - medical, dental, and pharmaceutical, with the ability to later expand to behavioral health data collection. Ultimately, CHC assembled a project team consisting of providers from each discipline, including information technology and support staff to evaluate products in several different categories. Included was a review of functionality and performance, as well as costs related to purchase and ongoing maintenance post implementation. The goal was to examine the overall cost of ownership and make informed decisions on set criteria, such as:

- Does the vendor share the organization's vision for the EHR?
- Does the product provided by the vendor have all the required key functions?
- Is the vendor utilizing the desired technology?
- Is the vendor CCHIT certified and is the product able to document meaningful use?
- Does the vendor demonstrate financial and management stability?
- Does the vendor have experience with implementing the product in a similar type of environment?

Based upon all the criteria evaluated, it was determined an ambulatory clinical information system developed by eClinicalWorks (eCW) offered the best system to support CHC services, at a lower comparable cost. Along the way, CHC had the opportunity to meet face-to-face with the eClinicalWorks owners who displayed a high level of commitment to FQHCs and its unique requirements.

The implementation project kicked-off on in September of 2008, with a very extensive and detailed project plan in place which took over a year to construct. Overall the plan comprised of many areas of consideration including cost, time, goals and objectives, productivity loss during implementation, and a patient's ability to receive services. During the early stages of the project, it was determined that contracting a consulting agency with IT implementation experience was needed. After a lengthy search, Cumberland Consulting was chosen and began work mid September 2008 while eCW assigned a technical architect and an implementation project manager.

The initial kickoff meeting covered the design process. Materials were prepared in advance of each session, and a detailed procedure for documenting and resolving outstanding questions was established. The first step was to create a sandbox environment, permitting the design team to make edits in the software. Design sessions were conducted for the front office, clinical, ancillary and billing areas. Included in the discussions was an analysis of workflows collected from site visits at the nine center locations. Data focused on differences across the organization, and steps to standardize in moving to a shared electronic platform.

From the initial stages of the process the project team knew that in order to have a successful system implementation, it was imperative to have full integration and participation of all staff members. As a result, a project plan was created that heavily involved staff throughout the different phases of the project, ensuring a level of ownership in the success of the project.

Training was also an important focus of the project. Each team member received two days of training followed by a week of onsite support. CHC decided to train all front-office and medical records staff, on both scheduling and medical records workflows. This decision was made with the understanding cross-functional training would allow greater staff flexibility and broader system knowledge. Overall CHC dedicated 20 days to train key staff members on the administrative functions of the system. Initial training was designed to target the following areas:

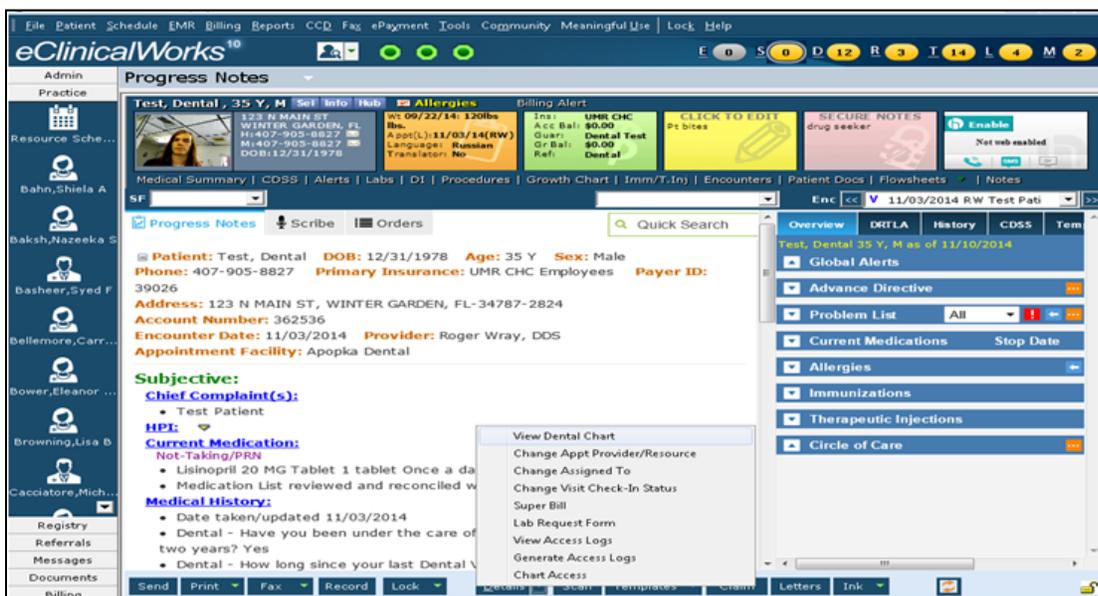
- Scheduling
- Practice Management
- Clinical

Based on the training sessions, the front office team created spreadsheets for visit types, provider working hours, schedules, security settings and mandatory demographic fields. These spreadsheets served as the foundation for system templates.

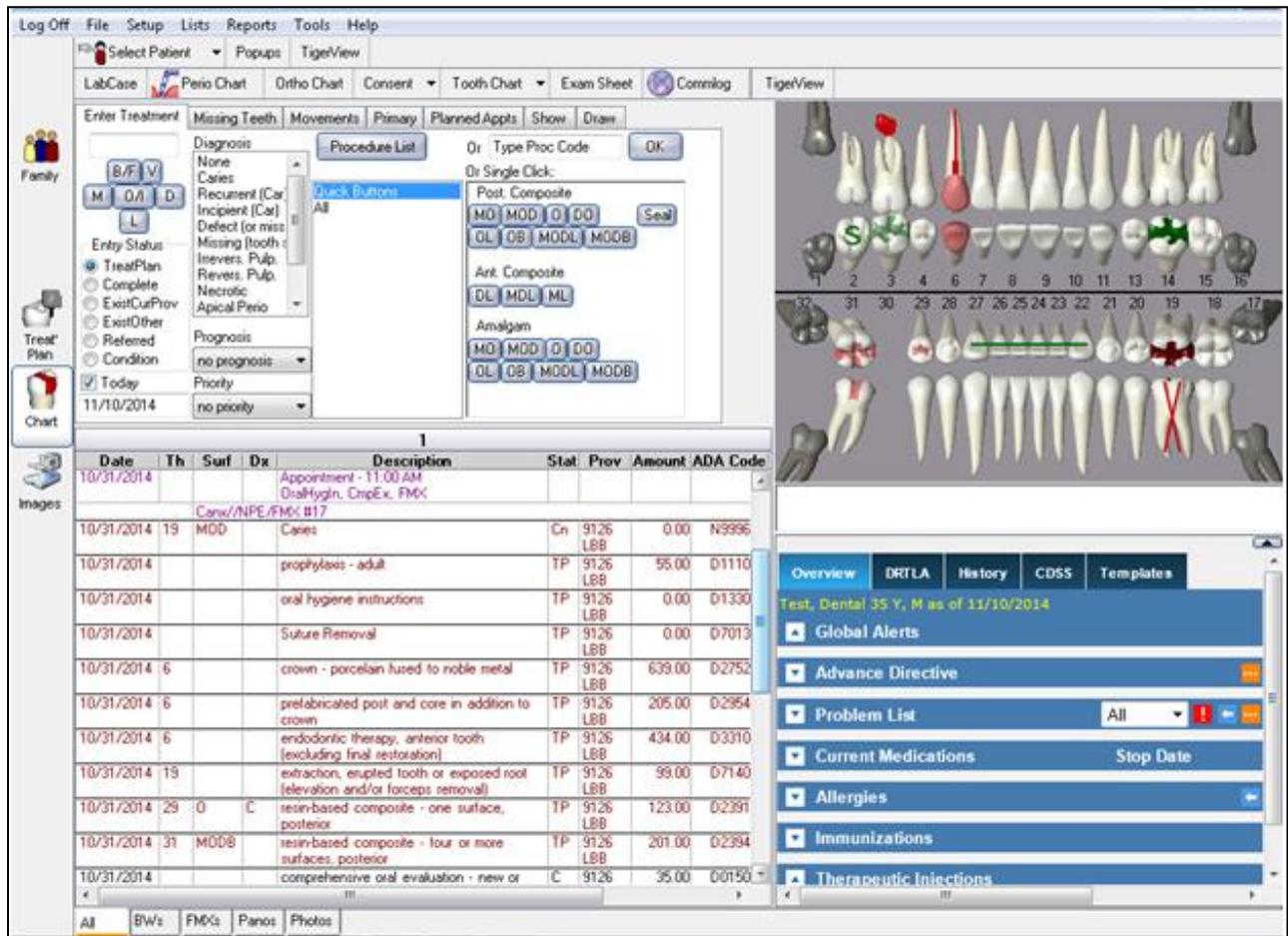
A successful go-live occurred in February 2009, due in great part to a tremendous team effort. CHC has a strong executive team that was committed to a successful implementation which empowered the project team to lead in the decision making process. The key stakeholders were driven by the importance of the blending of people, process and technology and the realization that success is dependent upon the creation of a stable network capable of expansion of both the software and hardware platforms.

#### 4) How was Health IT Utilized?

Employing an EHR has provided CHC with the opportunity to improve the delivery of healthcare services by facilitating patient information such as medical history, medication list, laboratory results, and radiological images. It has given physicians and dentists the opportunity to exchange key patient information with only the click of a button. Clinicians have the capability to navigate between medical and dental records without having to logout of one system and into another. The eClinicalWorks progress note is used by all staff, regardless of specialty or visit type. A favorite saying at CHC is “the patient lives in eClinicalWorks, their teeth live in the dental module”. The staff launch the dental module by clicking the details button at the bottom of the progress note and choosing, View Dental Chart.



Once the dental module is opened, it allows the staff to then perform all dental documentation functions. Key to the navigation is the eClinicalWorks interactive clinical wizard in the lower right hand corner of the screen. It allows the dental staff to view all pertinent medical information on the patient, without toggling back and forth between systems.



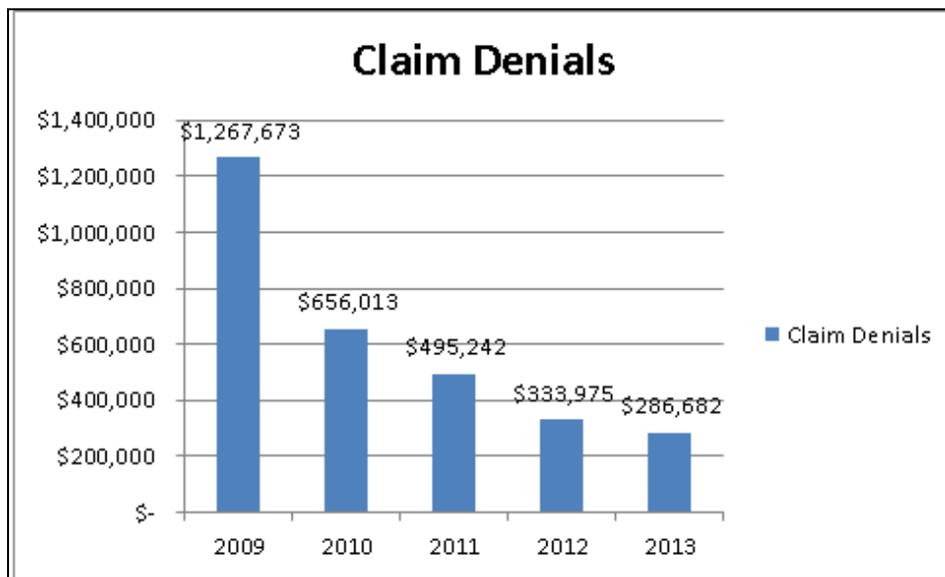
One of the biggest areas of improvement has been the advancements in reporting as a result of real-time data collection in eCW and the use of a data mining tool. The access and management of data has provided CHC with the ability to provide compliance reports on our patient population such as UDS reporting. Utilizing BridgeIT to generate reports, the need for collecting valuable data such demographic information, clinical summaries, problem lists, and medication lists were the reasons for integrating these two systems. The CHC IT team had the opportunity to work with the developers of BridgeIT and eCW in refining financial and clinical reporting aspects of the system. Even though the criteria for Meaningful Use (MU) was not finalized when the system was implemented, the collaboration between BridgeIT and eCW provided the opportunity to create reporting templates containing required MU information and other quality reports that can be accessed through the BridgeIT dashboard.

## 5) Value Derived/Outcomes

Implementing an EHR system has proven to be in alignment with CHC's strategic goals and significant return on investment (ROI) is expected with the advancement of the organization to gain efficiencies and provide state of the art care delivery.

### Management of claims denial process

The use of the EHR has allowed CHC billers to communicate with providers in a more timely fashion. The technology provides the tools to indicate billing errors and proactively identify documentation concerns in the progress note prior to claim submission, thus decreasing denials. CHC billers also utilize the action notification feature of the EHR to alert providers of the need to modify documentation to meet billing rules prior to a claim being submitted.



### Management of patient records across the sites and care continuum

In 2009, CHC delivered approximately 1,500 OB/GYN encounters (deliveries, surgical procedures, and observations) at an inpatient facility. Standard practice for OB/GYN providers was to print OB records (average 10 pages) and hand deliver them to the Hospital's Labor and Delivery unit to be kept on file for a patient visit. CHC adhered to this practice and unfortunately records were misplaced routinely. Various methods to improve security of records were attempted. For example, hospital staff signed when records were received and even a secure area was arranged in the unit for staff to place the records. Still, CHC was plagued with lost or misplaced records which compromised the safety and security of a patient's care. It also placed the caregiver at a disadvantage when treating patients. If a woman presented before 28 weeks, no records were available for the assigned provider.

In 2010, a project was undertaken to give secure access in to CHC's EHR to the Florida Hospital OB Department. Business agreements were obtained, secure access to the system was set-up, and a training program was developed and maintained with the supervisors. Currently, when patients arrive at Labor and Delivery regardless of gestational age, the staff has real time access to the patient's most up-to-date record ensuring that mother and child have the safest experience possible. Providers appreciate having access 24/7 to the patients most recent record.

In paper savings alone , over the past five years with approximately 7,000 hospital encounters at 20 pages x 7000 =140,000 pieces of paper. This does not factor in staff's time for printing or the 20 mile round trip transportation to the hospital.

The average cost to create a physical new patient paper chart is \$3.71 cents. This represents a cost of \$280,000 to compile new patient charts, had CHC continued to stay on a paper record.

<b>Years</b>	<b>Count of New Patients</b>
2009	11321
2010	13303
2011	16721
2012	15723
2013	13183
2014	5331
	<b>75582</b>

Some costs that cannot be easily calculated into an ROI include time in assembling the chart, pulling and filing, maintaining the charts, looking for misplaced charts, and transporting the chart from one site to another to accommodate patient specialty appointments. In addition, charts purged to offsite storage units (across 2 counties) could see a delay up to five to seven days for retrieval. Every 18 months the time consuming process of determining which charts could be purged, logging the chart manually in a journal, labeling the storage box appropriately, and arranging for facilities to transport occurred. The same task was required if the chart needed to be retrieved.

On-Call Providers now have 24/7 access to the EHR. CHC was able to take 14 medical record storage rooms and convert those in to much needed clinical areas including offices for Patient Care Specialists, who provide patient education and intervention for defined high risk patients.

Finally, as of 2012, CHC eliminated the 15 storage units, which contained paper records across 2 counties. All remaining paper charts that are kept for retention purposes are stored in the basement of one of our facilities.

**Storage unit costs**

2009	\$9649.74
2010	\$6334.30
2011	\$3864.00
2012	\$3864.00

## 6) Lessons Learned

Each team member excelled at their assigned tasks, leading to the success of the overall project. The team maintained the integrity of the project by open communication with one another and building solutions on consensus. Lessons learned which have impacted CHC included:

- **End user engagement** - CHC understood that for a project of this magnitude it is imperative for staff members to be fully engaged in the process, especially the design sessions. Staff has the capacity to conduct a complete system evaluation based on unique practice needs and provide the most valuable input regarding navigation and workflow within the application.
- **Data migration** - In coordination with the vendor, CHC decided to migrate three years of previous patient demographic data. This approach helped to reduce the number of inactive patients in the new database. For those patients who last visited CHC more than three years prior to the migration, their information was not converted. If these patients reactivate their engagement with CHC, they are required to register as new patients in the system. Data migration included the creation of worksheets allowing the CHC team to clean existing data points such as demographic and insurance information. The goal was to have the most current patient information in transition to the new system.
- **Network security** – Initially the data backups needed during the recovery process were done by the CHC IT team and not the server OS. By CHC doing this process it was discovered that a few servers were not backing up data. This was occurring because the data locations and the data stipulated by the software value added reseller (VAR) that were required to be backed up were not known. The solution was to update the back-ups to include the missing data.
- **E-mail exchange** - It was determined losing e-mails was detrimental to the services restore. While CHC was able to restore e-mail services without issue, the loss of e-mails from the hours between backups was not considered acceptable. This was occurring because continuous backups are disk/hardware intensive and take up space that was not available. A secondary exchange server that archives mail was added to resolve the problem.

## 7) Financial Considerations

Demonstrating a return on investment (ROI) from an EHR implementation is oftentimes challenging, but CHC had a goal from the beginning of the project to quantify an ROI for the overall project from implementation to present day. This is shown by looking at investments versus returns with an overall ROI to date calculated at 171%.

The investment calculations include all quantifiable capital costs and ongoing operational costs associated with maintenance of the EHR.

<b>INVESTMENT</b>	
<b>EHR Software</b>	
a. EHR software (licenses for providers, users and enterprise).	\$272,000
b. Pharmacy interface (one time cost)	\$10,000
c. Healthwise interface (42 medical provider licenses x \$10/month) 04/2013 through 04/2014	\$5040
d. IMO interface (one time cost)	\$3750
<b>EHR Hardware</b>	
Initial cost for EHR infrastructure	\$600,000
a. Hardware \$350,000	
b. Servers \$150,000	
c. Additional \$100,000 Includes virtual environment build - generator, ladder rack, expansion of the IT room and cooling system/alarm, virtual environment, upgraded network with managed switches, complete wireless system and certification of IT staff	
EHR and EHR-related software maintenance/support. (\$133,800 per year through Q2 2014)	\$401,400
<b>Consulting and training for implementation of EHR</b>	
a. Cumberland Consulting	\$300,000
Project and implementation management	
Training	
b. Staff resource time on implementation team	\$75,000
c. Staff training dollars (PM, Clinical, Providers)	\$75,000
<b>Total Expenses</b>	<b>\$1,742,190</b>

The returns calculations include all quantifiable dollars associated with quality initiatives, hard cost savings related to elimination of paper charts and resources required for chart functions, as well as cost savings related to workflow improvements associated with the automation of prescription refills through ePrescribing.

<b>RETURNS</b>	
<b>Meaningful Use Dollars</b>	
a. Medical and Dental Providers 2011	\$1,002,000
b. Medical and Dental Providers 2012	\$467,500
c. Medical and Dental Providers 2013	\$510,000
<b>Quality Incentive Programs</b>	
<b>Managed Care</b>	
a. Clinical Measures 2012	\$26,716
b. Clinical Measures 2013	\$79,306
c. Clinical Measures 2014 (Jan-Aug)	\$33,811
<b>CMS Incentives</b>	
a. Quality Measures 2012-2013	\$38,808
b. Quality Measures 2013-2014	\$79,782
c. Quality Measures 2014-2015 (Feb-Aug)	\$36,342
<b>Paper Chart Cost Savings</b>	
a. Elimination of copying of records	\$276,310
b. Reduction in paper chart supplies for new patient.	\$280,000
c. Reduced need for paper storage.	\$5928
<b>Staff Savings</b>	
Reallocation of staff from medical records to insurance verification reducing need for additional FTE's	\$95,160
a. 3 FTE's @\$14.00/hour + \$1.25 (benefits) = \$15.25	
<b>ePrescribing</b>	
Reduction in telephone encounter processing due to eRefill requests from in-house CHC pharmacies	
a. 2011-2014 = 5784 decrease in TE	\$55,388
b. \$92,544 savings -Surescripts + Kalos cost of \$37,156 over a 3 year period	
<b>Total Returns</b>	<b>\$2,987,051</b>
<b>RETURN ON INVESTMENT</b>	<b>171%</b>

## Soft ROI

CHC acknowledges that there are soft dollar cost savings that contributed to the overall ROI of the implementation of the EHR related to changes in the way the organization practices. This has been accomplished through workflow reengineering efforts and change management associated with electronic records versus paper records. Some of the key soft returns that have enhanced the team member and patient experience include:

- Integrated Medical and Dental record
- Patient portal for patient engagement
- Single EHR allows multiple providers to view a patient's chart without waiting.
- Secure remote access in to the EHR
- Elimination of illegible orders and costly management of paper charts (prep, pulling, filing)
- Elimination of copying and faxing records
- Clinical decision support
- Increased access and improved tracking of diagnostic results and follow-up
- Decreases adverse drug events (ADEs) due to allergic reactions
- Reduced duplication of tests
- Streamlined medication reconciliation and coordination of prescribing habits with Pharmacists
- Standardized patient education and instructions
- Pre visit planning to ensure patient visit is as productive and meaningful as possible
- Organizational and departmental reporting as a PCMH
- Viewing of Meaningful Use dashboard measures and Provider compliance within the EHR
- Quality outcomes data abstraction
- Improved compliance with regulatory requirements such as Advanced Directives
- Increased collections for providers due to use of IMO tools and certified coders
- Reduction in A/R relative to monthly billings. Change of 43% improvement
- Ability to manage and assign secure access levels in to confidential PHI