Network Economies of Scale and Improved Clinical Outcomes in Network EHR Implementations

Community Partners HealthNet

Doug Smith, CEO/CIO

1

HIMSS presentation about utilizing network based economies of scale to afford advanced IT installations, share knowledge, lower dependency on vendors, and develop a practical approach to developing similar business models.

Introduction

- **This presentation will:**
  - Explore how community health organizations can leverage economies of scale by forming a cooperative to acquire advanced IT applications and services
  - Include real-world examples of returns on investment and improved clinical outcomes through advanced tracking of data and reporting
- **Speaker:**
  - Doug Smith, CEO/CIO of Community Partners HealthNet
  - Forty years of IT and twenty-five years of CHC experience

2

Learning Objectives

- **Learning Objective 1:** Learn how community health organizations (CHOs) can afford and deploy advanced EHR systems and other applications.
- **Learning Objective 2:** Understand network-based economies of scale and the costs and results CHOs can realistically expect from this approach to IT services.
- **Learning Objective 3:** Consider the five core organizational, business and technological components of the network-based economies of scale value equation.

3

Infrastructure building and continued refinement of the provider's clinical data needs was the subject of our successful ICT initiative over the past four years. In order to develop a sustainable infrastructure, it was necessary to examine the trade-offs between capital and operating costs. The long-term business objective has been to reduce the operating cost per unit of service (e.g. encounters, users) across the network. If the operating costs of the network (staffing, telecom, etc.) are too high, small cost savings at the CHC level do not translate to an overall reduction of unit cost. Our system design allows for lowered operating and implementation costs through centralized servers and staffing. Fortunately, modern SQL-based software requires much less support than older operating systems. The initial implementation cost, for the combined EHR/PMS, based on the most recent RFP that we have responded to, is $12,335 per provider (cost to CHC, excludes local hardware and connectivity, does not include any reductions due to grant funds). These costs clearly show the dramatic economies of scale that we have already been able to achieve. Comparable numbers from 2005 compiled by MGMA for 2005 were over $32,000 per provider.

The five core organizational, business and technological components of the network-based economies of scale value equation are: 1)Trust, faster track to readiness, 2) Economies of scale/cost efficiency – economies due to centralization and due to leveraging of volume, 3) Knowledge leveraging – more experienced trainers, CHC experience, 4) Higher performance/sophisticated resources, and 5) Collaboration – sharing of expertise.

Learning Objectives

- **Learning Objective 4:** Identify the structure of a successful, cooperative network-based service provider.
- **Learning Objective 5:** Explore the actual EHR-related costs, including cost avoidance and cost savings, observed at one CHO.

4

Each network can be structured differently based on the needs of its members. However, common elements required are trust, defined goals and expectations, legal agreements, and readiness. Experience working together or in other collaborative settings is very valuable.

Past cost and future costs including so-called "hidden" fees are discussed and analyzed.

Community Partners HealthNet Data Center

Location of CPH centralized servers, data warehouse, staff.

Members

- Greene County Health Care
- Hudson River Healthcare
- Kinston Community Health Center
- NC Office of Rural Health and Community Care
- Nuestra Clinica del Valle
- Robeson Health Care Corporation
- Stedman-Wade Health Services
- Tri-County Community Health Center

Founded in 1999, Community Partners HealthNet, Inc. is a network of seven community health centers. These centers operate a total of 51 medical and dental clinics with 125 providers (including 110 physicians and mid-level providers, and 15 dentists). Together, they annually serve approximately 250,000 patients, more than half of whom are low-income and/or uninsured.

The members of Community Partners HealthNet are certified by the Centers for Medicare/Medicaid Services (CMS) under the Federally Qualified Health Center – Community Health Center (FQHC-CHC) program. Thus, they are on the front lines of our nation's efforts to provide essential medical and dental care to uninsured and underinsured people in geographic areas that are designated as medically underserved. Most patients who receive care from community health centers have no insurance or inadequate coverage and limited ability to pay. They also tend to have multiple medical problems, which are often chronic and complex. Community health centers realize that comprehensive, high-quality health care services are critical for this special group of at-risk patients.

CPH has seven CHC members and has recently partnered with the NC Office of Rural Health and Community Care to provided these services to seven RHCs in NC.

CPH Mission Statement

"Community Partners HealthNet, through shared resources, serves the participating community health centers in their commitment to provide quality, accessible healthcare to the populations in underserved areas."

7

CPH provides centralized hosting; implementation and training; help desk; clinical content; development; procurement and management of licenses and updates; interface contracting and management; assistance to centers in optimizing the use of the system; and changing workflows.

The centralized architecture increases security, redundancy and cost-effectiveness. Bugs and enhancement requests are tracked centrally with an eye towards optimizing the software for CHC use. Trends in support requests can be identified. Clinical expertise from the centers is shared. Clinical templates are shared. Clinical standards can be benchmarked. Reporting is robust.

The system design allows us to directly operate the EHR, DER, and PMS from the central location (ASP Model) and deliver them across the Internet via secure VPNs using Citrix Metaframe servers. A server farm of 22 Citrix metaframe servers (with a capacity of 1,500 concurrent users) has been installed and configured at the CPH Datacenter. A 5 meg internet connection (one link of redundancy) has been installed at the CPH Datacenter. CPH is connected to GCHC (a member CHC that is also resident in Snow Hill) with fiber optic, an internal router between the LANs controls access. If the CPH internet link is unavailable we can use GCHC's link and vice-versa. This redundancy is in addition to our disaster recovery capabilities.

Major Goals of CPH

- EHR/clinical data repository/clinical outcomes tracking to improve clinical care and reduce disparities
- Integrated IT services for CHCs and RHCs
- Web portal/distance learning, teleconferencing to support services
- Web communities/information sharing among members

8

At our strategic planning retreat in April 2001, participants decided that in order to improve the health status of our patients we would implement the chronic care model using state-of-the-art technology to allow comprehensive benchmarking, and clinical outcomes tracking in a comprehensive electronic health records system. Participants also thought that CPH should show "real leadership in the state and national arenas." In 2003, CPH was one of six ICT grantees funded to develop and implement integrated IT/Communication systems for CHCs.

Perspective

Medicine used to be simple, ineffective, and relatively safe.

Now it's complex, effective, and potentially dangerous.

Sir Cyril Chantler, MD

9

Typical EHR Implementations Do Not Include Advanced Functionality

- Fewer than 10% of physicians are using EHRs with full functionality such as electronic prescribing or computerized order entry.[1]
- Very few of these practices maximize usage of the system functionalities.

"How Common Are Electronic Health Records In The United States? A Summary Of The Evidence", Health Affairs no. 6 (2006): w496-w507, Ashish K. Jha, Timothy G. Ferris, Karen Donelan, Catherine DesRoches, Alexandra Shields, Sara Rosenbaum and David Blumenthal

10

In 2008 only 4% of physicians had a fully functional EHR and only 13% a basic system (NEJM, 2008: 349: 50-60).

Only between 2 and 12% of hospitals have EHRs that are fully digital and paperless (HIT Status report at http::/www.medrecinst.com.News/News.php?article=26&origin=1).

Learning the basics of EHR usage is what vendor training focuses on, but full implementation of the advanced features takes a great amount of staff time in planning and implementing correctly.

Full implementations require that data capture be simple and integrated into the workflow, internal communications are used, the EHR is integrated with other applications as appropriate, and that teams and procedures are in place for continual improvement of the IT system.

CHC Utilization

- Adoption of health IT in health centers is also slow
- Lack of capital is the most frequent barrier to adoption

A recent article (Shields, Shin, Leu, Levy, Betancourt, Hawkins, Proser, Market Watch, Health Affairs, Vol. 26, No. 5) reports that only 13% of CHCs have EHRs that meet minimal specifications. The CHCs cited lack of capital as the principal barrier to adoption. This article says that using comparable data, 9% of private physician offices had similar EHRs in 2005.

Solution: Redefining Health Care

$$Value = \frac{Results}{Costs}$$

Based on Porter & Teisberg, 2006

The United States does not have a health care system. There is a health care sector of the economy that is increasing fragmentation and largely driven by out-dated insurance rules. Malpractice laws further increase the lack of cost-effectiveness of the system as does the increasing specialization of physicians. In any efficient economic system value has to be determined by results (for example clinical outcomes) divided by some sort of unit cost (for example encounters, member months, etc.). HIT can be a useful tool as part of a restructured system that integrates both care and information. Numerous studies have shown that the use of HIT can improve clinical quality including clinical outcomes.

A significant decrease in medical record errors is made possible by the comprehensiveness of the system. Medical information such as allergies, profiles, lab results, risk profiles, vital signs and statistics are provided. Patient and family, medical, surgical, social, asthma, and hospitalization histories are accessible along with information concerning medications, mental health and diabetes allowing for better patient-family care. For women, physicians are able to recall information regarding obstetrics, gynecological history, family planning and ultrasounds. Safety features of the program list potentially dangerous items and interactions and present warning icons immediately. The June 26, 2003 issue of the New England Journal of Medicine includes a study that shows that doctors in the United States currently fail to take half the recommended steps for treating many common illnesses such as diabetes and high blood pressure. A true EHR system like this, with standard clinical protocols built into the visit templates, will revolutionize health care in this country.

Federal Perspective

"Due to the rapid and fundamental changes in the health care environment, it is neither desirable nor acceptable for health centers to operate in isolation."

- from the BPHC overview of the ISDI initiative.

13

HRSA policy on EHR implementation recognizes the inherent complexity of cost-effective EHR implementations that are in compliance with applicable medical records laws including HIPAA as well as the new FTC "red-flag" rules.

Most community organizations including most health centers do not have the resources to do this properly. This service is not provided by the majority of vendors, and typical vendor recommended installations of single server and manual tape back up systems are not HIPAA compliant. Individual centers rarely put the monitoring, security and disaster recovery capabilities that are required by HIPAA (and many state laws) in place. This creates significant legal liabilities. Some centers have been know to lose all their data. This type of data can not be recreated the same as PMS type data can be recreated (even at a significant cost to the center). General liability and malpractice risks are enormous in these types of installations.

Pooling resources in networks or IPAs can be a vehicle to avoid the lack of success that individual practices working in isolation frequently face.

When this implementation is done well, process redesign savings can fund the ongoing support costs.

Health Center Controlled Networks (HCCN)

- Explanation of HCCN grant program
- Overview of HRSA network grants

14

A HRSA grant program that supports the creation, development, and operation of networks of safety net providers to ensure access to health care for the medically underserved populations through the enhancement of health center operations, including health information technology.

HCCN program currently comprises grant programs formerly known as Integrated Services Development Initiative, Shared Integrated Management Information Systems, and Information and Communication Technology, and EHR Implementation grants.

Health Center Controlled Networks (HCCN)

- HCCNs are:
  - Led by HRSA-funded health centers
  - May include other public or private non-profit health care providers who come together to form a network that plans, develops and implements systems

These systems are designed to:

Improve access to care;

Increase efficiency, revenue and productivity; and

Improve clinical quality and patient health status.

Benefits of Network Implementation

- Trust, faster track to readiness
- Economies of scale/cost efficiency
  - Economies due to centralization and due to leveraging of volume
- Knowledge leveraging
  - More experienced trainers, CHC experience
- Higher performance/sophisticated resources
- Collaboration
  - Sharing of expertise

16

Networks provide an application service provider (ASP) option for providers that decreases risk, reduces capital investment and ensures appropriate technology review and implementation.

ASP/network models scale one IT professional across three or four companies, depending on the application and its complexity. Running equipment in an ASP model is much cheaper than doing it in house. Upgrades are done centrally by experienced network staff in collaboration with the vendor.

Training costs are less and offered with more options than when provided by vendors. Training is tailored to the members needs by trainers who are experienced with that type of practice.

According to a 2005 survey published by the Medical Group Management Association (MGMA) Center for Research in Englewood, Colo., and the University of Minnesota School of Public Health, the average purchase and implementation cost of an EMR system is $32,606 per full-time physician. With CPH our average implementation costs are $12,335 per provider.

According to David Hartzband, D. Sc., "The health center controlled network provides the high level expertise for more sophisticated IT functions such as connectivity between sites, back up, security, electronic medical records support and training and disaster planning allowing health center staff to focus on the day-t0-day operations of the center." Community Health Forum, Fall 2008, p 30.

Benefits of Network Implementation

- Access to federal and other grant funds for capital costs
- Opportunities for clinical collaboration
- Address gaps in vendor products and services
- HIPAA and FTC 'red flag' compliance

CPH IT Grants Received:

1999-2000 – $632,490 to fund PMS and local hardware at TriCounty Health Center, Goshen Medical Center, Robeson Health Care, Stedman-Wade Health Services, and New Hanover CHC.

2001 – $711,260 to construct data center and initial IT structure including data warehouse.

2001-2003 – $400,000 in funding for CPH staff involved in IT and JCAHO accreditation training for members.

2004-2007 – $2,168,288 for EHR licensing and implementation (TriCounty, Robeson, Stedman-Wade, Kinston, HRHC), CPH staff costs, interfaces, additional IT infrastructure, disaster recovery center, PMS conversion, etc.

2008-2009 – $799,043 for EHR implementations, (two additional TCCHC sites, Nuestra Clinica, seven RHCs).

HIPAA and many state laws require 1) prevention, detection and correction of security violations, 2) strict authentication methods, 3) physical security, 4) secure transmission of EPHI, 5) monitoring systems, 6) IT policies and procedures, 7) polices for emergency secure access to the EHR, 8) vulnerability scanning plans and reports, 9) configuration and encryptions standards, 10) data back up procedures, 11) disaster recovery plans, test and document results, to list a few.

Network Economies of Scale

- Facility – $315,000, back-up generator (2 days, diesel), redundant air conditioning, redundant electrical and CAT5 wiring, military grade fire suppressant system, physical security system with cameras
- Server redundancy – PMS, $125,000, clustered servers, disk array, tape carousel, and various software

18

CPH secured grant funding to construct the facility and design and install the initial server architecture including clustered servers, disk arrays, tape carousels, the data warehouse, web servers that allow secure access from anywhere, and a disaster recovery center in a secure level 3 facility located 75 miles from the main facility.

All servers are wired redundantly both electrically and network, using dual UPS, dual network cards, dual electrical outlets, etc. The facility has a back up diesel generator that can run for 48 hours without refueling.

Our centers are connected to CPH through secure firewall-to-firewall virtual private networks (VPNs). Citrix clients are installed on PCs or thin clients which are used to access the centrally managed EMR. CPH also provides access via the Web using the Citrix Secure Gateway. This gives our health centers' providers secure access to the records from any PC with an internet connection.

 CPH has four full-time IT professionals on staff: a help desk person, a hardware specialist, a programmer/report writer and a training and software specialist. Centralizing these positions has been critical to our success. Sharing centralized IT staff enables the health centers to benefit from IT professionals that they would otherwise not be able to afford individually.

Economies of Scale (cont.)

- Server redundancy – EHR $125,000, clustered servers, disk array, tape carousel, and various software
- Data Warehouse – Report writing software, data dictionary, proprietary scripts, $90,000
- Disaster Recovery – Commercial data center in Raleigh, rack and servers $100,000, backup and disaster recovery software $15,000, real-time backup of EHR data, and failover of operations

19

Services are provided that are cost prohibitive for individual practices to buy including disaster recovery, sophisticated security and monitoring software, and data warehousing.

Center costs are limited to on-site hardware, connectivity, membership, and support.

Center costs if done individually (and in compliance with IT best practices and HIPAA) would include hosting, monitoring, license management and upgrades, vendor relations, interface development and maintenance, functionality development and tracking, customized reporting development, disaster recovery development, testing, and support.

CPH members have paid about $600,000 in membership dues over the last eight years and received $632,000 in hardware and licenses owned locally. In addition, centers have had the use of over $4,000,000 in grant funded infrastructure and technology, including EHR and PMS licenses, training, reporting, security, and disaster recovery resources that the members did not have to pay for. The $600,000 investment in working as a network brought a substantial return while reducing members' capital and ongoing costs dramatically.

Economies of Scale (cont.)

- Existing interfaces
- Staffing – Higher level of training, detailed knowledge of products used, applications, communications software, etc.
- Training costs – CHC staff turnover is high and lower training costs including web training (conference and interactive web community software, $15,000) significantly reduce costs across sites

CPH has in place interfaces with four lab companies, bi-directional PMS/EHR interfaces, and bi-directional Dental Electronic Records to PMS interfaces.

CPH staff has over five years of experience with the EHR product that we deploy.

Our implementation support includes change management, project planning, workflow analysis and redesign training, data conversion, classroom and hands-on training, go-live support. In addition CPH provides sites with the minimal necessary hardware and connectivity specifications. Knowledge transfer is faster and more specific to CHCs than vendor support can provide.

CPH has many web capabilities including training, remote access, and an interactive web community to reduce costs and encourage sharing among members.

Hardware and software was purchased and installed at the CPH Data Center in May 2003, and includes clustered servers, data array, tape back-up and other hardware to make the system fully redundant. The current configuration includes two Dell 6850 Servers with 73 gigabyte 15k clustered drives as the host for an EMC CX300 disk array. The EMC has fifteen hard drive slots in which we have fourteen (146 gigabyte, 15k) drives installed. We have three raid groups that reside on the cluster with the first two configured in a Raid 1, the next three configured in a Raid 5, and the next eight also configured in a raid 5. The last drive in the CX300 is set aside for a hot spare. The CPH datacenter has an automatic diesel fuel back-up generator.

Examples of ROI: Cost/Benefit to CHCs

1. Improved patient care
2. Reduced transcription costs 50% - 100%
3. 10% decrease in FTE's needed per provider [1]
4. 15% increase in patient visits per provider [1]
5. Process redesign savings (see work at Johns Hopkins Medical System)

- (1) Linda Zdon & Blackford Middleton, Ambulatory Electronic Records Implementation Cost Benefit: An Enterprise Case Study.

21

ROI (return on investment) can be measured in many ways. Usually, one looks at cost reductions or revenue increases compared to what the cost would have been under the old system.

Not all costs or returns are easily quantifiable, and some returns may be system returns that are not realized by the practice under current reimbursement methodologies.

Before you can calculate ROI for a practice you must know costs, what you are going to implement, and the costs of the implementation (capital and ongoing). You also have to understand who is paying for what. Medical records staff and supply costs can also be reduced significantly in an EHR implementation.

Increased cost factors include hardware, end-user devices, licensing, installation, training and support fees. These costs are extremely different from vendor to vendor.

There are numerous hidden losses including training time, upgrades to current technology infrastructure and staff knowledge, additional security and network production, converting part of old paper records to EHR, and training new staff.

Examples: Cost/Benefit to CHCs

6. Decreased ordering of lab tests [2]

7. 33% reduction in Medicare disallowance of tests ordered [2]

8. 37% - 50% decrease in days accounts receivable [2]

9. Space and supplies savings

- (2) GAO: Information Technology: Benefits Realized for Selected HealthCare Functions, Oct. 2003.

22

Typical start-up costs for EHRs alone are $25,000 to $50,000 per provider and monthly costs can run $1,000 to $2,000 per provider.

Among the factors that affect ROI are practice size, locations, service style, multiple modalities, and workflow redesign.

Generally EHRs reduce operating costs slightly and improve revenue capture slightly (by improved coding). With a network model the reduction in operating costs can be significant.

With appropriate redesign, staff costs for phone messaging and refill requests can be significantly reduced and more errors avoided.

GCHC ROI Example

- Before EHR implementation GCHC:
  - Paid about $40,000 annually in transcription costs
  - Had five providers and one medical records staff person
- Post EHR implementation GCHC:
  - Has 12 providers and one medical records staff person
  - Pays about $65,000 less annually than what we would have paid using transcription

23

Before EHR implementation, GCHC paid about $40,000 annually in transcription costs and had five providers and one medical records staff person. GCHC now has 12 providers and one medical records staff person, pays membership dues to CPH and support fees on the EMR product. If GCHC was still using transcription, the transcription cost would be $96,000 and we would need two full time medical records staff for an annual cost of about $160,000. Dues to CPH are $15,000, the medical records person about $32,000, and support fees are about $16,000 per year. This example shows that GCHC has reduced costs by about $65,000 with the network implementation of the EHR. These dollars have been freed up to fund indigent care or filtered to other increased costs at the center. It is worth noting that these savings occurred because of the use of transcription and the rapid growth of GCHC. Not all centers could achieve this level of savings.

If GCHC had not done a network implementation the initial costs of setting up the redundancy, security and disaster recovery capabilities would have been much greater and the recovery period much longer.

Path to Successful Implementations

- Assessing organizational readiness and commitment
- Partnering with other like provider groups to create economies of scale and knowledge sharing
- Following EHR planning for success steps

24

To achieve successful EHR implementation, based on CPHs experience, we recommend following the bullets above.

Organizational Readiness

- Strong organizational vision and strategy
- Talented and committed leadership
- Partnership between clinical and IT staffs
- Thoughtful redesign of clinical processes
- Excellent implementation skills
- Good local IT infrastructure and staff

25

The single largest cause of the failure of EHR implementations is the lack of organizational readiness on the part of a health center. If a center does not have the vision and the willingness to spend the time to plan the implementation in detail, including all the workflow changes that are required, it will most likely encounter problems. Lack of local IT skills and connectivity are also significant barriers. Successful EHR implementation takes total organizational commitment.

Unless the medical director and the CEO are strongly behind the project and require that all providers use the systems, the implementation will eventually fail.

Seven Steps of EHR Planning for Success

1. Evaluate needs
2. Develop care services plan
3. Develop business plan
4. Develop technology plan
5. Train personnel
6. Test care and technology plans
7. Evaluate outcomes and make adjustments

26

The practice needs to decide what it wants to gain from an EHR implementation, develop a plan for the workflow changes, develop the business and technology plans, train all personnel who will be using the system, test the plans, go-live, evaluate and make adjustments to the procedures.

CPH Integrated Applications

Datawarehouse

EHR

REFERENCE
LAB CO.

HRSA/Collaboratives

DENTAL

CPT, ICD-9

CDT

MEDICATION
ASSISTANCE

DEMOGRAPHICS,
INSURANCE

DEMOGRAPHICS,
INSURANCE

PMS
WITH CLAIMS
SCRUBBING and
PATIENT CALLING

Dental
Claims

ERA

UDS, A/R,
FINANCIAL
REPORTING

Clearinghouses

Claims-Medical,
Statements

Patient Checks In

Patient Checks Out

27

One of CPH's goals is to create integrated systems that reduce duplicative data entry and its inherent additional cost and errors. The diagram above shows the bi-directional interfaces between products.

An integrated information system for CHCs has to be built around the EHR and disease management capabilities since that is the core functionality of any primary care practice. Other systems, internal and external, are interfaced with HL7 compliant interfaces. Only needed data is interfaced. For example, with the EHR and dental electronic records, we have interfaces that share demographic data and billing data. When a patient is registered at either a medical or dental site, both medical and dental health records are created. Both physicians and dentists will have access to the medication list.

The EHR interfaces with numerous reference lab companies.

Integrating the systems creates further cost savings by eliminating redundant data entry as well as reducing errors.

The PMS interfaces seamlessly with claims scrubbing software and with a patient calling system.

Simplified Design of Data Warehouse

This simplified diagram shows how certain tables from the EHR databases (one for each member) are extracted every evening. These tables are then processed with sources, patient chronic disease grouping, and chronic disease related events and uploaded into the data warehouse. These procedures allow us to run reports quickly for a particular patient population (e.g. all diabetics) or a subset of the population (e.g. diabetics whose care is actively being managed in a collaborative).

Discussions with the medical directors of the centers in CPH convinced us that it was unlikely that there would be 100% agreement on any single comprehensive set of measures unless one was mandated by the federal government. The design of the data warehouse took this into account by creating maximum flexibility in what we can track. Each center chooses the set of measures that it wishes to track and CPH chooses or creates the appropriate reports. We can do this for each of the HRSA chronic disease collaboratives, tracking each of the required measures and also for the CMS/AMA measures. CPH also tracks a number of the GPRA clinical performance measures (CRS 2006, Version 6) developed by the Indian Health Services (IHS) including depression screening, calculating BMI, childhood immunizations, flu and pneumoccal vaccinations, cancer measures, tobacco use measure, etc. Monthly reports for each health center are sent to each center's clinical team to create the feedback loop to enable them to improve clinical performance. Data required by the HD collaboratives is moved from the data warehouse to the spreadsheets that are required for uploading data to the appropriate collaborative cluster.

Uses of Data

- Tracking clinical outcomes and process measures, feedback to medical director and providers for QI purposes
- Advocacy, state and federal lobbying (UDS & EHR)
- Grant reporting
- Board reporting
- Marketing to other stakeholders – JCAHO, hospitals, MCOs, etc.
- Policy research

29

The most important uses of the data are for QI activities, pay for performance reporting, advocacy, grant and management reporting, marketing to various partners, and for policy and clinical research.

Community Partners HealthNet	HbAlc Test Range For Diabetes Patients Last Year	Date: 9/28/06
		GCHC

Race: BLA	Total number who had HbA1c test: 268	
HbA1c test result range: 7.0 or less	Number of patients: 153	Percentage: 57.09%
HbA1c test result range: 7.0-7.9	Number of patients: 85	Percentage: 31.72%
HbA1c test result range: 8.0-8.9	Number of patients: 42	Percentage: 15.67%
HbA1c test result range: 9.0-9.9	Number of patients: 29	Percentage: 10.82%
HbA1c test result range: 9.9 or more	Number of patients: 42	Percentage: 15.67%
Race: HIS	Total number who had HbA1c test: 125	
HbA1c test result range: 7.0 or less	Number of patients: 55	Percentage: 44.00%
HbA1c test result range: 7.0-7.9	Number of patients: 27	Percentage: 21.60%
HbA1c test result range: 8.0-8.9	Number of patients: 21	Percentage: 16.80%
HbA1c test result range: 9.0-9.9	Number of patients: 24	Percentage: 19.20%
HbA1c test result range: 9.9 or more	Number of patients: 39	Percentage: 31.20%
Race: WHI	Total number who had HbA1c test: 120	
HbA1c test result range: 7.0 or less	Number of patients: 68	Percentage: 56.67%
HbA1c test result range: 7.0-7.9	Number of patients: 37	Percentage: 30.83%
HbA1c test result range: 8.0-8.9	Number of patients: 21	Percentage: 17.50%
HbA1c test result range: 9.0-9.9	Number of patients: 8	Percentage: 6.67%
HbA1c test result range: 9.9 or more	Number of patients: 14	Percentage: 11.67%

This sample report shows one example of clinical tracking abilities. The report show ranges of HbA1c results for one health center over a one year period and then further breaks them down by race. The lack of disparities between white and black patients is significant.

CPH has over a thousand reports that can be run for any of our members and we create new reports on demand.

Feedback Loops

Reports generated CPH
(based on CHC specifications)

Medical Director

Medical Director (CHC1)   QI Director (CHC2)

Clinical Committee
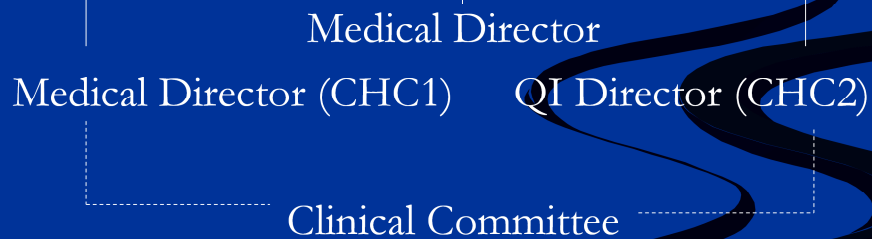
31

The enhanced availability of information through data warehousing allows for reporting individualized for each CHC. These reports are then used by the Medial Directors or QI Committees to track QI progress. Results can be measured and compared by practice, site, individual provider, etc. Report writing software allows for expanded and sophisticated displays or information or simple lists. Reports can be created for the entire patient population or any sub-set of the patient population. Registries can be created in the EHR using flags. The CPH Clinical committee meets bi-monthly to share information and work on enhancement requests.

For studies on QI with EHRs and networks see:

Fiscella and Geiger, Health Information Technology and Quality Improvement for Community Health Centers, Health Affairs, Vol. 25, Number 2, pps 405- 412.

Sequist, et al., Implementation and Use of an Electronic Health Record within the Indian Health Service, J. American Medical Informatics, Assoc., Vol. 14, Number 2, pps 191-197.

Miller and West, The Value of Electronic Records, in Community Health Centers: Policy Implications, Health Affairs, Vol. 26, Number 1, pps 206-214.

QI Examples

Patient Learning Needs Assessment:

- Assessment of patient learning needs addresses:
    - Cultural and religious beliefs
    - Emotional barriers
    - Desire and motivation to learn
    - Physical or cognitive limitations
    - Barriers to communication as appropriate

32

The first audit of 100% of EHR showed that only 51% of all patients had learning needs assessed.

QI Examples (cont.)

- Sub-committee designed a template in the EHR:
  - Reminds staff to review all aspects of learning needs/barriers
  - Designed so that the information can be retrieved electronically
- The EHR allows us to audit 100% of patient's chart in much less time than conducting a manual audit of 25 charts

33

Using the template enhances patient outcomes as all aspects of learning needs are assessed, which allows all providers to establish a plan of care based on the needs identified.

QI Examples (cont.)

- Over a six month period of time, learning needs assessment improved to 93%

34

From 51% to 93% represents an 82% improvement over the six months.

QI Examples (cont.)

Medication Reconciliation:

- Medication reconciliation/giving list to patient at conclusion of visit
- The first audit of 100% of EHR showed that only 69% of all patients had their medications reconciled
- An assessment form is now used by staff that requires them to obtain a list of all medications and dosage being taken by the patient

35

Obtaining a list of all medications being taken by the patient allows the provider to ascertain if the patient is compliant with medications as prescribed.

At the conclusion of the visit, the provider gives the list to the patient for their use at home to assure that the correct medication and dosage is being taken. The EHR is designed so that the information can be retrieved electronically.

Using the assessment form enhances patient outcomes because all medications/dosage can be reviewed during the visit and when they are at home they can make sure they are taking the prescribed medications and taking the proper dosage.

QI Examples (cont.)

- The provider reviews the list and can add to or delete medication/dosage as indicated
- Over a six month period of time, medication reconciliation improved to 99%

Improvement from 69% to 99% is a 43% improvement in 6 months.

Closing Remarks

By forming a cooperative to acquire advanced IT applications and services, community health organizations can:

- Acquire advanced information technology that would otherwise be out of reach
- Improve clinical outcomes through advanced tracking of data and reporting as part of a QI system

37

HIT is a tool that, if used effectively, can improve clinical quality, internal communication, clinical outcomes and the efficiency of a physician's practice. However, if proper planning and workflow changes are not made, the probability of success is virtually nil. Health plans are starting to pay more for EMR usage, malpractice rates will decrease with EHR usage, and as pay for performance unfolds, EHRs are a critical tool to survive in the new health care environment. Networks are a cost-effective, high-quality approach that many providers can use to improve quality and reduce costs.

Community Partners
HealthNet, Inc.

email: dsmith@cphealthnet.org

http://www.cphealthnet.org

301 Martin Luther King Blvd.   **(252) 747-8162**
Post Office Box 658   **Fax (252) 747-8163**
Snow Hill, NC 28580-0658   **Cell (252) 526-8325**

38

Please feel free to call with questions.