COMMUNITY HEALTH
INTEGRATED PARTNERSHIP
Community • Clients • Caring

Implementing an Electronic Patient Record System in a Rural Community Health Center

Maryland Rural Health Association Meeting
Ocean City, Maryland
November 4, 2011

Agenda

- CHIP Health Center Controlled Network
  - Overview
- Electronic Patient Record System (EPRS)
  - Considerations Defining Our Expectations
  - Learning & Planning
- Request for Proposal (RFP)
  - Initial Planning Assessment
  - Criteria Development
- EPRS “Projects within a Project”
- Preparing Health Centers for “Go Live”
- Lessons Learned
- EPRS Funding
- Questions?

Community Health Integrated Partnership

- Founded in 1996 by eight (8) federally qualified health centers (FQHC)
  - To provide services & programs that support Maryland's FQHCs
    - Services & programs provided on a shared services, shared resources basis
    - Services & programs dare designed to improve health center operations & contain costs
- Provide FQHCs with management, financial, quality improvement, & technology services
  - Management services – credentialing, strategic planning, billing/reimbursement consulting, community development/health center expansion, training, workflow re-engineering
  - Quality improvement - Performance improvement & patient outcome reporting, program initiatives (medical home, ED aversion/diversion) & patient satisfaction surveys
  - Financial – revenue cycle management, Medicare & Medicaid billing compliance, monthly operational & financial benchmark reporting
  - Health information technology – practice management, electronic health record & e-prescribing systems
    - Connectivity to state's health information exchange (HIE)

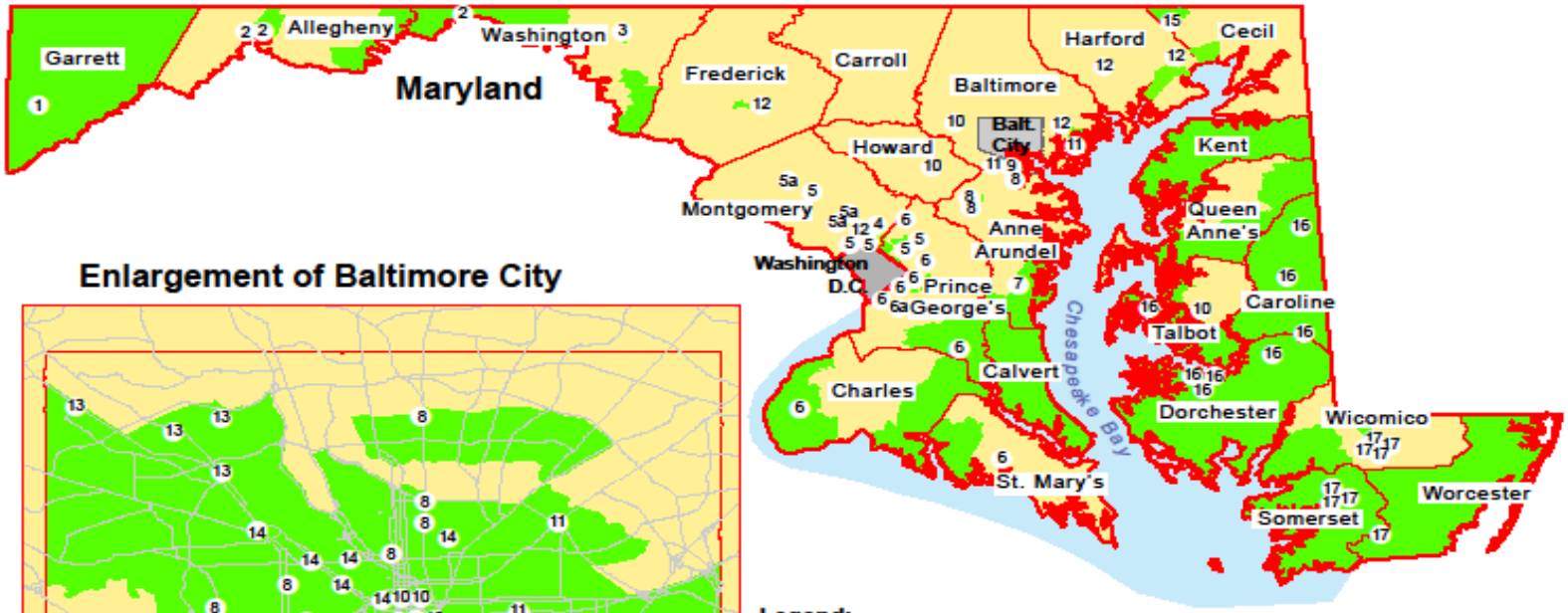
What is a Federally Qualified Health Center

- Nonprofit, community-directed health care providers/systems
  - Located in high-need, high-poverty areas w/high infant mortality & low number of physicians
  - Offer services to all regardless of ability to pay or insurance status
  - Significant provider of services to undocumented population
  - Provide comprehensive primary care services
  - Services designed to address needs & priorities of local community
  - Services provided in linguistically & culturally appropriate manner
  - Provide services that enhance access to care (transportation, translation, case management & eligibility for entitlement services)
  - Reduce health disparities and improve patient outcomes through high quality care
  - Cost effective providers of health care
    - Average annual cost to serve patient (w/o dental) - $440
    - Average annual cost to serve patient with dental - $670
    - Average cost of ED (OP) visit is $481/average cost of FQHC visit is $130

What is a Federally Qualified Health Center

- FQHCs are governed & funded under Section 330 of the Public Health Service Act
- FQHCs receive federal grants to subsidize services to uninsured/under-insured
  - Federal grant dollars payer of last resort
  - Federal grants are annual fixed dollar amounts
- FQHCs paid fixed Prospective Payment Rate (PPS) rate by Medicaid
  - FQHCs can only bill one service per day regardless of number of services provided
- FQHCs have stringent federal reporting requirements including patient outcome data
- Maryland FQHCs accredited by The Joint Commission

Maryland's Federally Qualified Health Centers



Legend:

1 Mountain Laurel Medical Center
2 Tri-State Community Health Center
3 Walnut Street Community Health Center
4 Mary's Center for Maternal and Child Care
5 Community Clinic
5a Community Clinic, Inc. WIC site
6 Greater Baden Medical Services
6a Gr. Baden WIC site
7 Owensville Primary Care
8 Peoples Community Health Center
9 Family Health Centers of Baltimore
10 Chase Brexton Health Services
11 Baltimore Medical System
Not shown are 6 school based sites
12 Health Care for the Homeless
13 Park West Health System
14 Total Health Care
15 West Cecil Health Center
16 Choptank Community Health System
Not shown are 25 school based sites
17 Three Lower Counties Community Services

Federally Designated Medically Underserved Areas or Underserved Populations

Map updated by BNIA-JFI, July 21, 2010

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EPRS….Considerations

- As health centers' quality improvement initiatives matured, increasingly frustrated with limits of existing data systems
  - PMS housed financial & operational data but no link to (manual) clinical data
  - Recognized value of electronic patient record as clinical management tool & improved data source
- Recognized major undertaking & began education of staff, Board & Clinical Leadership Committee about the merits & pitfalls of electronic patient record systems
  - Reviewed industry articles & created forums for broad discussions
  - Demonstrated how EPRS data could advance quality improvement efforts
  - Articulated (often) EPRS produces clinical ROI, not financial ROI
- Recognized implementing EPRS would have broad impact & shared vision with regulatory agencies, payors & other stakeholders to gain support
- Recognized that our rural health centers would have special challenges
  - Utility power – outages require investment in automatic transfer generator as rural areas are not high restoration priority like densely populated urban areas
  - Rural areas often have dead zones & are out of range for 3G/4G high speed wireless internet
    - Absence of low cost high speed cable, DSL or fiber optic networks
    - Satellite not an option & forced to use higher cost/lower bandwidth T1 lines

EPRS - Defining Our Expectations

- Step One – Define What We Expected to Achieve with an EPRS
  - Identify areas for delivery system improvement & measure results of performance improvement initiatives – prepare for “meaningful use”
  - Identify variances, by race, ethnicity, age, gender in health care access/ delivery & measure our efforts to close those care gaps
  - Ensure patient safety with 24/7/365 access to patients’ records from any location to ensure clinical decisions based on real time information
  - Reduce opportunity for medical/drug errors by giving providers access to medication history & current medications
  - Improve patient care & compliance using alerts for diagnostic tests, immunizations, follow up visits, prescription refills, etc.
  - Improve delivery system efficiency by replacing paper patient records with organized record using alerts & other system tools for proactive patient management, tracking referrals, timely diagnostic reports, etc.

Learning & Planning

- Learned from our Predecessors
  - Site visits, meetings & conference calls helped us learn from other HRSA-funded HCCNs that implemented electronic health record systems
- Key Decisions Guided Planning, RFP & Implementation Processes
  - Project management would be structured, disciplined & OPEN
    - All information would be shared internally & with external partners
  - Governance would be committee structure (similar to the PMS Project)
  - All health center disciplines would be engaged in processes
  - Full disclosure about financial & operational implications – short & long term
  - Participants would mutually agree on one EPRS vendor
  - Application would be hosted & managed centrally – drove NOC decision
  - Clinical content would be provider-centric & developed collaboratively by multi-disciplined group
  - Develop all clinical content at front end vs. staging over time (years)
  - Content development process would include structuring data to meet QI & reporting requirements

RFP - Initial Planning Assessment

- Request for Proposal (RFP) to potential software vendors defined health centers' system specifications & functional requirements & business terms
  - Conducted health center assessments & interviews with key staff to ascertain operational, clinical & technical requirements for EPRS RFP
- Identified challenges/opportunities we would encounter at implementation
  - Physicians enthusiastic & willing leaders but their time would be limited
  - Pre-planning/communications generated high level of project support
  - Implementation will stress health centers' human resources & technical capabilities; network will need to provide resources
  - Preliminary workflow analyses suggested changes in current business processes to optimize EPRS utility
  - Health center staff turnover & patient growth will challenge implementation, especially workflow analyses & training
  - Health centers' technology infrastructures will require updating & network technical support
  - EPRS will represent significant new IT costs that will stress budgets

RFP - Criteria Development

- Engaged a cross section of disciplines & functions from all participating health centers to seek feedback on EPRS expectations & functionality

- Established criteria to identify potential vendors
  - CCHIT certified, established EPR marketplace presence, on-going commitment to application R & D, CHIP minimum standards, etc.

- Request for Proposal Workgroup
  - Participated in content development of RFP (used HRSA EPR guide)
  - Created tools to standardize vendor evaluation
  - Submitted RFPs to 10 vendors
  - 7 vendors completed RFP / 1 vendor RFP incomplete / 1 vendor lacked resources to complete RFP / 1 vendor “no showed”
  - RFPs were reviewed, ranked and scored

- Vetted additional products as presented
  - VISTA, eClinical Works, HealtheState & Henry Schein

Searching for a Partner, Not Just a Vendor

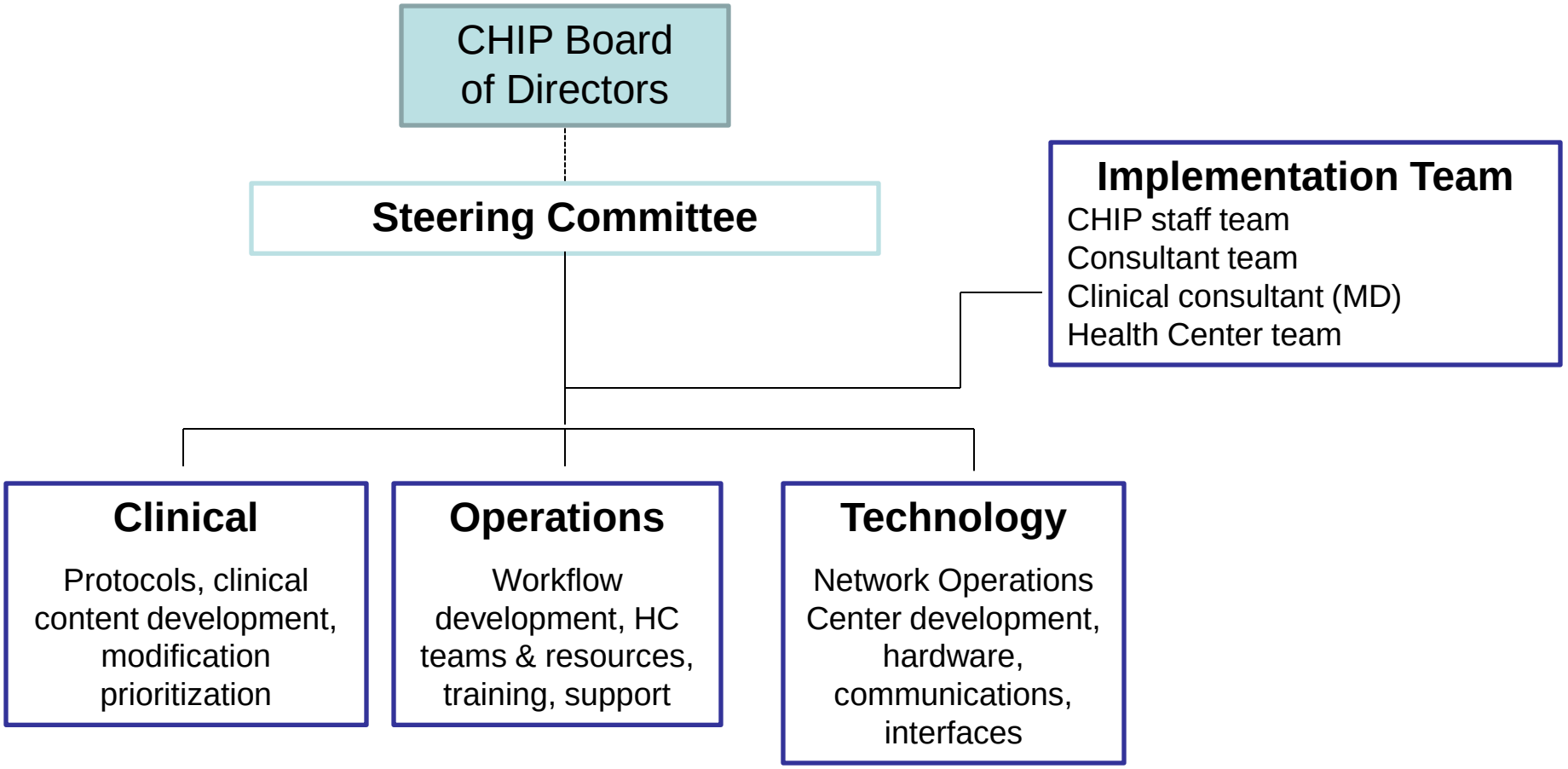
- Strong partnership with PMS vendor translated into similar value in EPRS vendor search
- Conducted “Demo Day” with the top 4 vendors resulting from RFP evaluation and scoring
  - Highly structured & disciplined process designed to optimize reviewers exposure to applications
  - 16 participants from RFP Workgroup & 8 health center representatives
  - Scoring documents with values ranging from 1 to 4 developed to normalize responses & maintain as much objectivity as possible
    - Activities of Daily Operations (ADOs)
    - Application Functionality
- Conducted due diligence at installed sites
  - Developed our own “use cases” for site visits

Searching for a Partner, Not Just a Vendor

- Results
  - Reviewers' scores tabulated & vendors ranked by total score
  - RFP Workgroup reviewed results & authorized site visits for top 2 vendors
  - Conducted site visits & due diligence on top 2 vendors
  - RFP Workgroup made vendor recommendation to CHIP Board based on RFP scoring, Vendor Demo day and site visit feedback
  - Board ratified RFP Workgroup recommendation
  - Vendors notified of outcome
  - Contract negotiations began with selected vendor for EPRS software & related products (interfaces, scanning, etc.)
    - Contract terms critical to project success – sought counsel of contract attorney experienced in electronic intelligence & intellectual property
    - 6 months later we signed the contract with GE Healthcare

Project Organization & Governance

Goal - Successful installation with effective use of CHIP, Consultants & Health Center resources & time, minimizing impact on productivity & revenue



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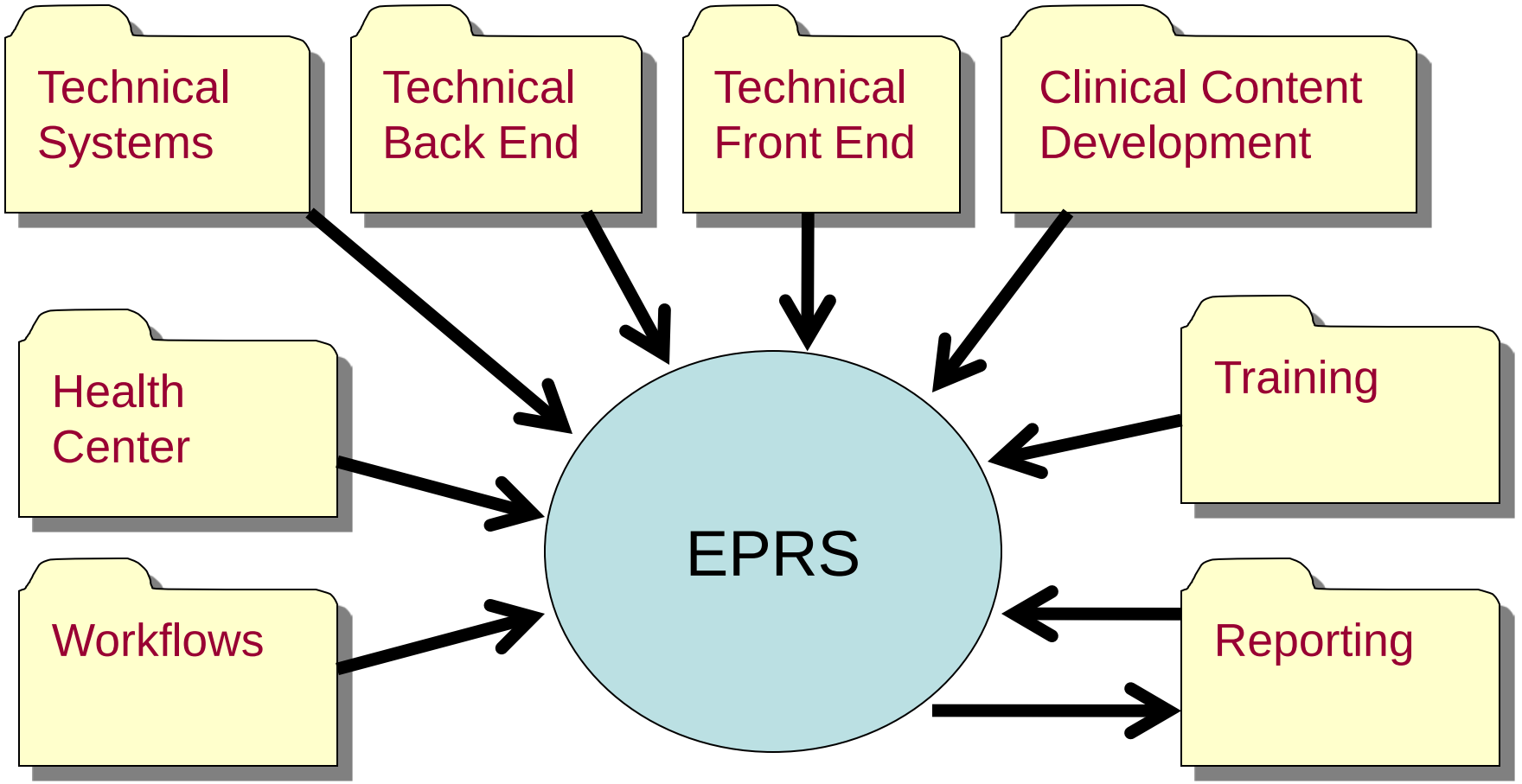
EMR – Projects within a Project



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Communication

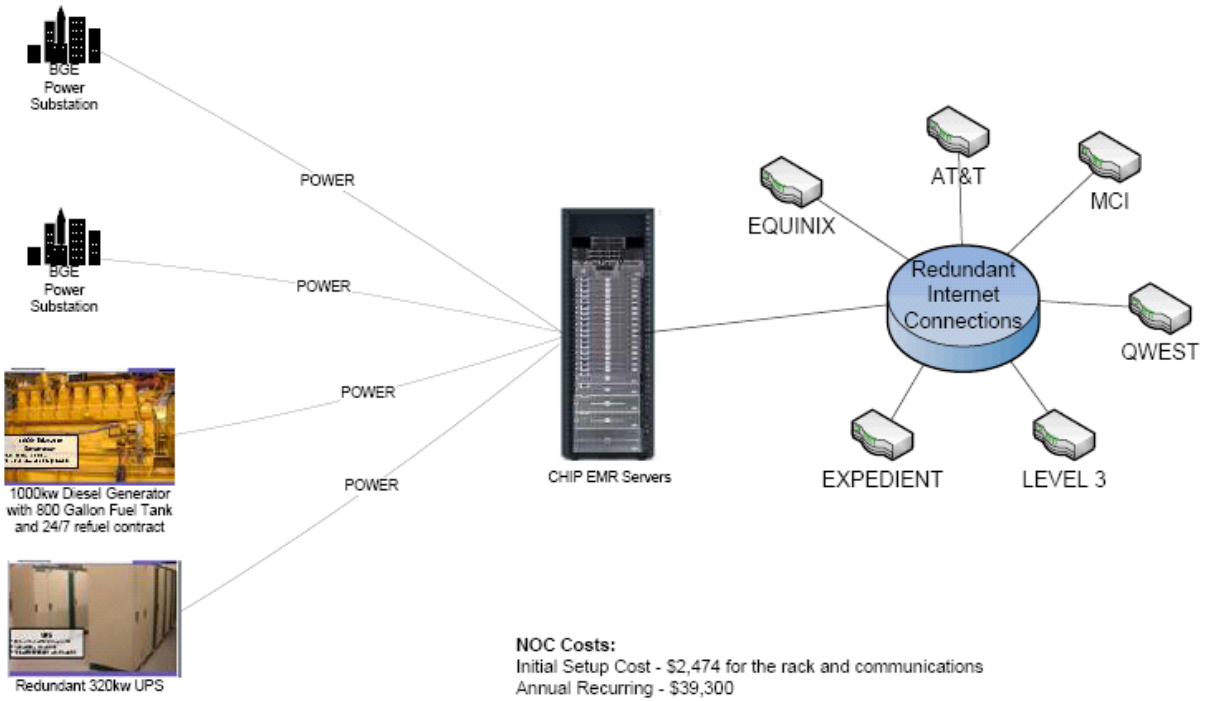
- EPR systems are significantly more complex & dramatically impact health center clinical practice, operations & culture
- Magnitude of CHIP EPRS implementation requires communication at all levels of health center staff to maintain interest & enthusiasm over long project duration
  - Use various communications tools to keep participants aware of milestones, accomplishments, issues & delays
  - Effective communication vehicles used were Board, Steering Committee & Workgroup meetings, external briefings, progress reports, web site, & e-mail blasts in addition to routine communication
- Communicate Candidly & Frequently – *warts & all!*
  - EPRS' are complex projects, "stuff" is going to happen
  - Share successes & use "speed bumps" as teachable moments
  - Recognize participant contributions & commemorate major milestones
- Manage Expectations
  - Large scale implementations can be 24+ month duration
  - Continually communicating project status helps participants see progress & feel accomplished

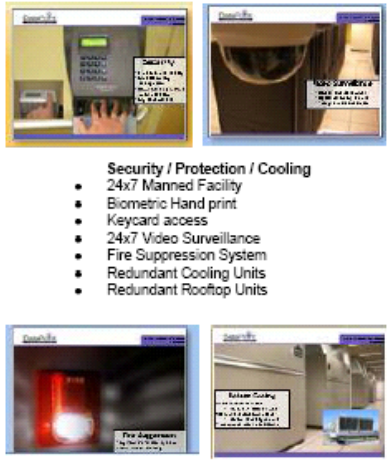
Technical Systems

- Develop Network Operations Center (NOC)
  - CHIP elected to design/develop own NOC
  - NOC located in off-site secure data center with multiple levels of power & communication channel redundancy
  - Design & assemble hardware & communication configurations
  - Design & implement second site back up system
- Develop “Operations Manager” Program
  - Developed system to automate monitoring of hardware & software housed at NOC
- Revise Disaster Recovery strategy to include EPRS
- Revise IT Policies & Procedures & Business Continuity Plan
- Develop & execute plan to migrate PMS to NOC
- Develop & execute plan to install interfaces

Overview of EPRS Architecture

Network Operations Center (NOC) Overview





Security / Protection / Cooling

- 24x7 Manned Facility
- Biometric Hand print
- Keycard access
- 24x7 Video Surveillance
- Fire Suppression System
- Redundant Cooling Units
- Redundant Rooftop Units

NOC Costs:
Initial Setup Cost - $2,474 for the rack and communications
Annual Recurring - $39,300

The costs for CHIP to build a much smaller yet ideologically similar configuration for our current needs would be as follows:
Initial Outlay - $120,246
Annual Recurring - $49,152

The additional costs of a site move would need to be incurred, as CHIP would need to move to a facility that is physically located next to a Telco Central Office / Peering Point, and allows for external diesel generator and fuel tank storage / utilization

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2/6/2008

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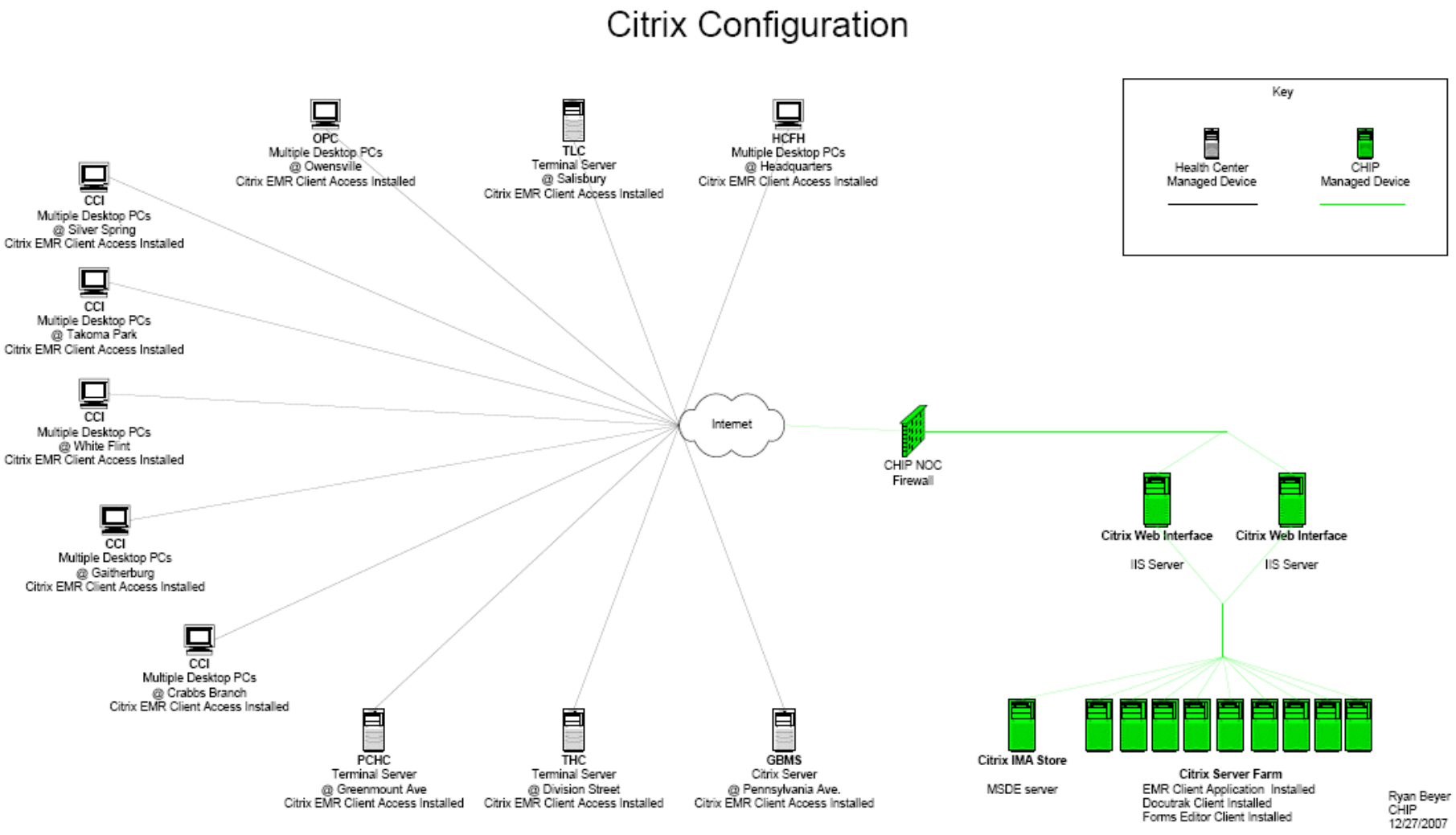
Overview of EPRS Architecture



Overview of EPRS Architecture

User Experience Overview

DESKTOP

The methodology for user access is as follows

- In the existing environment, each user has an RDP or ICA Desktop workspace with Icons for the Ntierprise Application, Office Applications, and other line of business applications
- An icon for the EMR connection will be installed on their desktop workspace.
- The icon will connect the user to a CITRIX Published Application Server farm at the CHIP Datacenter.
- The published application mode will enable each user to have access to the EMR software, while not launching a second full desktop workspace (ICA desktop).
- This method will eliminate the confusion of desktop switching.
- This method will also allow for desktop support shadowing to be maintained through a single location per site, as opposed to shadowing a user at the CITRIX server for EMR and the Remote Terminal Servers for PMS

ACCOUNT ACCESS

The average user will have a minimum of 4 account/password combinations.

Local Domain Account	tlcuser@TLC.DOM
PMS Account	tlcuser
Data Center Domain Account	tlcuser@CHIP.DOM
EMR Account	tlcuser

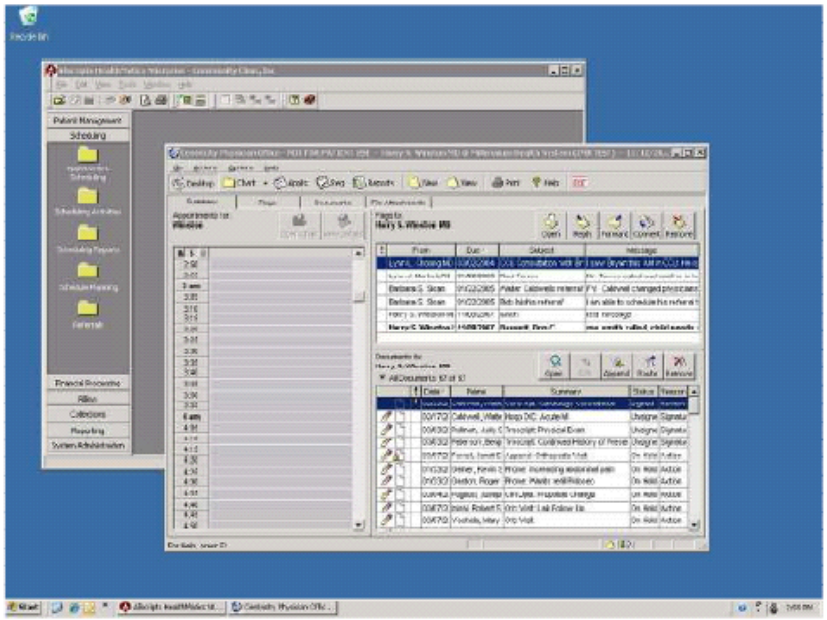
The best approach is to standardize accounts to be the same userid and password in each application and domain, and to train the user to synchronize password changes across domains / applications manually.

SITE CONNECTIVITY

- Each Site must be evaluated for communications needs
- Bandwidth - 40kbps per user / Low latency
- Redundancy - Sites need a redundant path to the datacenter
- No VPN is required for the CITRIX Hosted Application, as all printing / scanning devices will be certified for driver compliance with the Citrix server. (Generally, a VPN is required when attempting to communicate with a networked printer / scanner that can not be addressed by a Citrix/Terminal server device driver)
- The Datacenter communications will be fully redundant

PRINTING / SCANNING

All user devices will have to be qualified for operations with the EMR application, ensuring that the correct printer, scanner, storage, etc. drivers are available. This will eliminate the need for centralized print spoolers at the DATA Center and network traffic VPNS back to the health centers. This will not eliminate the need for managed VPN's for the interfaces.



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Technical
Back End

- Learn Encounter Form Editor & Visual Form Editor
- Third Party Applications (separate purchases)
  - Scanning & Document Indexing
  - e-Prescribing
  - Charge Entry
- Interface Development
  - Demographic, scheduling and charge entry interfaces – 2 PMS (Allscripts & GE Centricity Physician Office)
  - Lab interfaces – LabCorp and Quest (+ future interfaces for “one-off” labs)
  - Prescription interface to SureScripts
  - Design interface configuration, testing protocols, maintenance & technology support required for each interface
- End User Experience
  - Design system to manage multiple passwords, connectivity to application, etc.
- Reporting Structure
  - Develop data warehouse, data dictionary, observation terms & business intelligence tools

Technical
Front End

- Learn Application Functionality
  - Naming conventions, list organization & language structure
  - Clinical protocols & cross reference files
- Learn 3rd Party Applications (Link Logic, Docutrack, etc.)
- Design, Test & Implement Interfaces & 3rd party Applications
- Transition from Test to Production Database Environment
  - Cross reference files for HL7 interface
  - Appointments types & books created
  - Spanish translation for patient instructions
  - Clinical content import & export
- Develop Training Program, Tools & Collateral Materials
  - Two levels of training – “go-live” & on-going
- Develop Chart Migration Strategy
  - General protocols & unique center application

Clinical Content

- Learn Encounter Form Editor & Visual Form Editor
  - Tools used to develop clinical content
- Clinical Content Development Process
  - Document all data elements on paper forms used by health centers
  - Identify statutory forms that need to be incorporated in content
  - Document all reporting requirements of all regulatory agencies (HRSA, Ryan White, ROSIE, etc)
  - Design clinical content (forms) with support of clinical & operational content experts
  - Conduct iterative review of content by practice area experts & medical directors until final approval
  - Transfer content into production environment for release to providers/clinical staff
- Clinical Content Development by Practice Area
  - Identify clinical champion by practice areas (Pediatrics, Adult Medicine, Mental Health, Dental, etc.) to assist with form design
  - Ensure clinical content designed to meet providers' needs for documenting patient visit
  - Obtain provider buy-in via multiple levels of provider input & review of forms

Health Center

- Health Center is focus of all collateral work of EPRS implementation
- Commitment of CEO, Medical Director & key operational leadership critical
  - Establish internal EPRS project team to make decisions & meet milestones
  - Centers typically challenged by insufficient human & financial resources
  - Staff at all levels need to be well-informed about value & impact of EPRS
- Center IT staff needed to manage internal infrastructure & communications channels & work with Network to install hardware, etc.
- Super-users serve as project champions & training & support resources
  - Super-users need to be allocated sufficient time to be full project participants
- Operations, Clinical and IT staff will have to devote significant time to project
  - Collect paper forms & document workflows for each practice & operational area
  - Contribute to development of clinical content
  - Update policies & procedures (clinical, operations, disaster recovery, providers' remote access, etc.)
  - Manage initial & on-going chart migration process
  - Support "go live" & ongoing staff training

Workflow Discovery – I Didn't Know You Did That!

- Workflow Discovery is process in which documents, information or tasks that pass from one staff to another for action, according to a set of procedures are documented, typically flow diagrams
- Why Workflow Discovery is Important
  - Understand work being done today at granular level
  - Understand how paper forms are used & interface workflows
  - Monitor the activities in real time & identify bottlenecks
  - Track all workflow events & measure performance
  - Improve quality of processes
    - Variance analysis identifies areas health center will need to reconcile processes
- Types of Workflows
  - Administrative - registration, appointment scheduling, encounter flow, etc.
  - Clinical Support - phone notes, flags, standing orders, etc.
  - Practice - Adult Medicine, Pediatric Medicine, OB/GYN, Pediatrics, Addictions, Mental Health, etc.
- Workflow Outcomes
  - ***How*** the patient – and chart - progresses through the health center visit
  - ***Identifies*** who touches the chart & what components are updated
  - ***Identifies & clarifies*** staff roles (EPRS access & training)
  - ***Facilitates*** the development of future-state workflows (EPRS)

Transitioning from Paper to Cyberspace

- Chart Migration is the process of transferring selected clinical information from paper chart to electronic chart so providers will have access to key clinical information prior to patient's first post-implementation visit

- Key Process Elements
  - Migrating selected information, not converting paper chart to electronic format
  - Chart migration is an on-going function until all active charts are loaded
  - Initial chart migration designed to load up to a month's worth of appointments
    - Entering data into EPRS used as a training tool
  - Paper charts accompany patient for 3 - 4 visits so provider can add information, use as reference or request additional information be loaded

- CHIP chart migration
  - Selected data to be migrated
    - Problems, medications, allergies, advanced directives, adult & pediatric immunizations
    - Report results for use in *Clinical Outcome Measure* reporting
      - Mammogram, Pap, colonoscopy, etc.
    - Behavioral Health/Addictions – Initial Assessment (scanned document)

Making It Real - Training & Training Tools

- End-user training is the culmination of months of system development & health center “go live” preparation & critical to implementation success

- Training schedules finalized 4-8 weeks prior to “go-live” to allow time to organize work schedules
  - Placement in training is based on functional role
  - Training supported by resource documents & learning tools
  - Conduct computer skills survey to identify special training needs
  - Use two trainers – one for didactic training & one to provide individual support

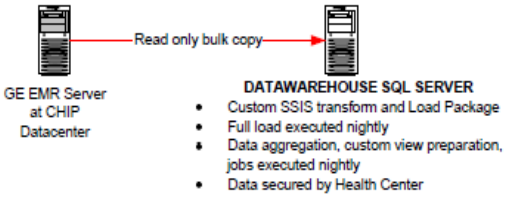
- Resource Documents
  - EPRS Project Overview, Chart Migration Strategy, Workflow documents

- Learning Tools
  - EPRS Training Curriculum (Manual)
  - EPRS End User Pocket Guide
  - EPRS Chart Migration Instructions
  - EPRS Quick Text Listing
  - EPRS Glossary of Terms

Reporting

- Health Centers have significant demands for data to meet patient management, regulatory, patient outcome & quality improvement requirements
  - Ad hoc reports to manage specific populations such as monitoring all diabetics
  - Meet HRSA patient outcome reporting requirements for annual Uniform Data Set (UDS) & Service Area Competition (SAC) reporting
  - Support internal quality improvement programs, network quality improvement program & external reporting to stakeholders
- Developed data warehouse to house & manage large volumes of PMS & EPRS data
  - Warehouse updated overnight to provide centers current information
  - Data volume too heavy to perform reporting from EPRS
  - Reporting needs are more sophisticated than limited pre-programmed report capability of most EPR systems
  - Use “business intelligence” tools to support more complex data analysis

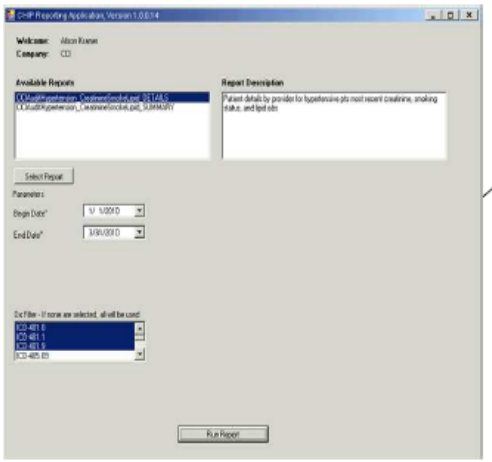
Data Warehouse and Custom Reporting Overview



GE EMR Server at CHIP Datacenter

DATAWAREHOUSE SQL SERVER

- Custom SSIS transform and Load Package
- Full load executed nightly
- Data aggregation, custom view preparation, jobs executed nightly
- Data secured by Health Center

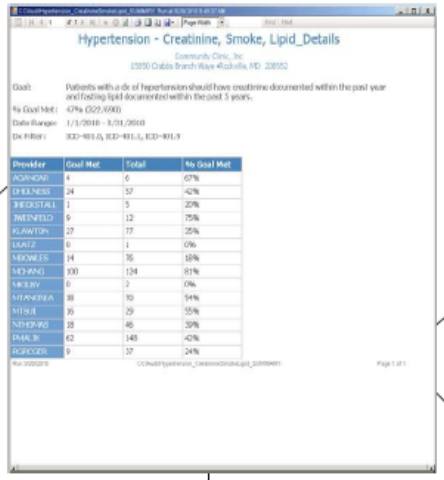


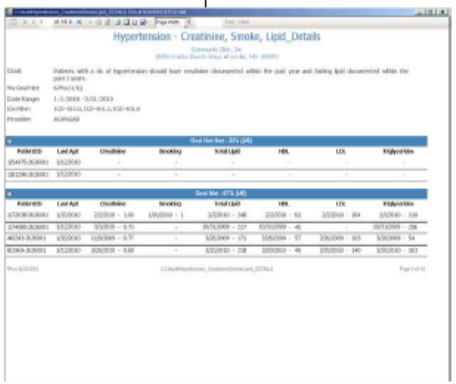
Custom Built Reporting Front-End

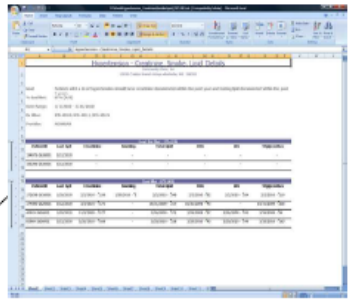
- Simple UI
- For Users needing Canned reports / canned criteria driven reports
- Customer driven – CHIP builds reports and adds to library

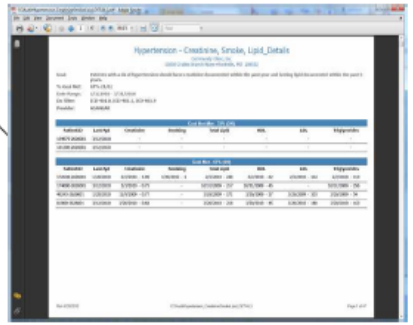
Custom Reports

- Simple UI
- Drill – Down Capability
- Immediate data view – Goal of 10 second Average response, <30 seconds max response for all reports
- Export to PDF / EXCEL
- Customer driven – requests for change / customization enacted by CHIP









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08/01/2010

Data Warehouse

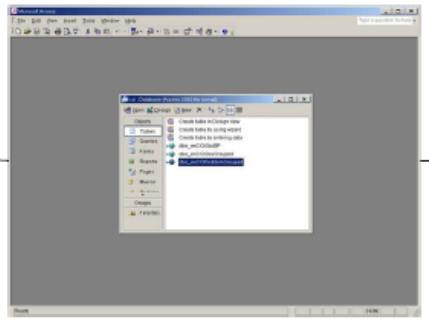
Data Warehouse and Custom Tools Overview

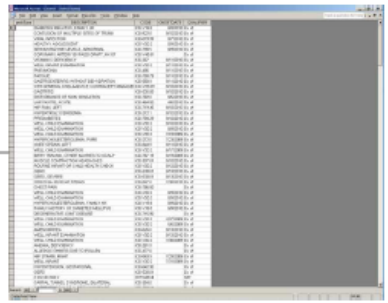
Data Warehouse SQL Server

- Security Groups Limit user access to their companies' data
- Custom views are created for unique site needs
- VPN access for direct data requests to customer site is available

VPN to Customer
Read only SQL connection

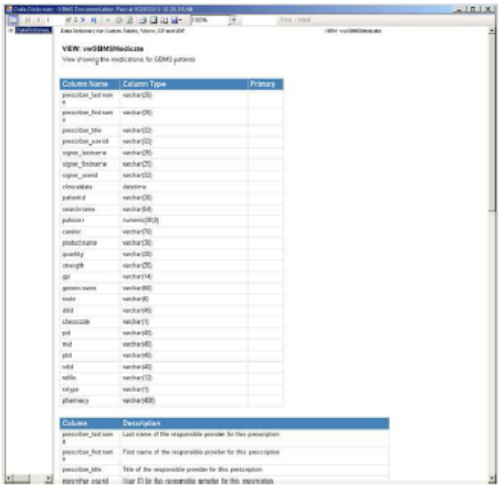
Customer Database / Data consumer located on or offsite





Microsoft Access Data Tool

- Security Groups Limit user access to their companies' data
- Prebuilt views of compiled data available for users to create their own custom report
- Within the Microsoft Access published web application
- Data can be exported to local file at customer site or saved within the user's profile at CHIP



Data Dictionary

- Provides user with data usage description and full relationship joining details
- Maintained centrally at CHIP and modified as warranted

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- Reporting Support Provided By Network
  - To ensure that data is available in reportable format, skilled staff need to ensure that patient visit (encounter) data is entered into EPRS accurately, linked to observation terms & based on algorithms that staff to generate accurate reports
  - Clinical reports require a higher level of expertise to develop/generate
    - Programs such as patient centered medial homes, HEDIS, CMS demonstrations, etc. require the ability to link clinical, financial & operational data
  - Clinical reporting used for decision-making requires data be continuously monitored & managed in order to ensure its integrity
  - Reporting requirements for federal (HRSA) & state regulatory requirements requires higher level of expertise than typically affordable by health centers
  - Meaningful Use requirements are complex requiring higher skill levels to ensure health centers meet requirements & receive incentives

Performance Outcome Measures

MD CHRC Performance Measures			CY 2006	EMR Data as of 12/10
Goal 1: Reduce the HBA1c of all diabetic patients to <9%				
Anticipated Outcome	**Methodology**	**Data Source**		
Health Centers will demonstrate an average HBA1c <9% for their diabetes patients (Type 1 or Type 2)	***Numerator***: Number of patients with a diagnosis of type 1 or type 2 diabetes who had a HBA1c <9 during measurement year	Health Center HDC data utilized to identify numerator	Baseline: 31%	
	Denominator: Number of total patients with a diagnosis of type 1 or type 2 diabetes during measurement year	PMS – Clinical Analysis Rpt All Diabetic Patients CY 06		
Performance Improvement GOAL REVISION				
Track "diabetes control" performance measure— *Proportion of adult patients aged 18 to 75 years (born between January 1, 1934 and December 31, 1991 at the time of this report), with a diagnosis of Type I or Type II diabetes, whose most recent hemoglobin A1c (HbA1c) was:*	***Numerator***: Number of patients aged 18 to 75 years with Type I or Type II diagnosis whose most recent HbA1c < *7.0%*	ERPS Application/ Data Warehouse		36% (N=601/ D=1672)
	Numerator Number of patients aged 18 to 75 years with Type I or Type II diagnosis whose most recent HbA1c ≥ *7.0% and* ≤ *9.0%*	ERPS Application/ Data Warehouse		34% (N=570/ D=1672)
	Numerator Number of patients aged 18 to 75 years with Type I or Type II diagnosis whose most recent HbA1c ≥ *9.0%*	ERPS Application/ Data Warehouse		30% (N=501/ D=1672)
	Denominator : Number of patients aged 18 to 75 years with Type I or Type II diabetes diagnosis seen at clinic for medical services at least twice during the reporting year	ERPS Application/ Data Warehouse		

Performance Outcome Measures

MD CHRC Performance Measures			CY 2006	EMR Data as of 12/10
Goal 2: Increase the number of patients receiving 4DTaP, 3OPV/IPV, 1MMR, 1HepB, 3Hib (and Varicella) immunizations				
Anticipated Outcome	**Methodology**	**Data Source**		
Health Centers will demonstrate a >80% documented age-appropriate immunization rate for patients 2 years of age.	***Numerator***: Number of children 2 years old receiving age-appropriate immunizations during measurement year	PMS – Clinical Analysis Rpt All 2 y/o children w/ specified immunizations seen in CY 06	Baseline: 48%	50% (N=1111/ D=2189)
	Denominator Number of total children 2 years of age during measurement year	PMS – Clinical Analysis Rpt All 2 y/o children seen in CY 06		
Goal 3: Percent of Cardiovascular patients with a hypertension diagnosis (but not diabetic) whose last blood pressure taken during measurement year was < 140/90				
Anticipated Outcome	**Methodology**	**Data Source**		
Health Centers will demonstrate > 50% of cardiovascular patients with a diagnosis of hypertension with their latest blood pressure measurement <140/90.	***Numerator***: Number of Cardiovascular patients with a hypertension diagnosis (but not diabetic) whose latest blood pressure taken during measurement year is < 140/90	Health Center HDC data utilized to identify numerator	Baseline: 19%	57% (N=2377/ D=4174)
	Denominator: Number of Cardiovascular patients with a diagnosis of hypertension (but not diabetic) during measurement year	PMS – Clinical Analysis Rpt All Hypertension Patients seen in CY 06		
Goal 4: Percent of patients with Asthma with a record of flu vaccine during measurement year				
Anticipated Outcome	**Methodology**	**Data Source**		
Health Centers will demonstrate >90% of patients with a diagnosis of asthma with a documented influenza vaccine from health centers	***Numerator***: Number of patients with Asthma with a record of flu vaccine during measurement year	PMS via MS Access Database - All Asthma Patients w/ specified CPT codes for flu seen in CY 06	Baseline:10%	48% (N=18563/ D=38415)
	Denominator: Number of patients with a diagnosis of asthma during measurement year	PMS via MS Access Database All Asthma Patients seen in CY 06		

Performance Outcome Measures

MD CHRC Performance Measures			CY 2006	EMR Data as of 12/10
Goal 5. Percent of women 21 or older who have had a pap smear performed within the prior 3 years				
Anticipated Outcome	**Methodology**	**Data Source**		
Health Centers will demonstrate a >90% of female patients age 21 and older who have had a documented pap smear performed within the last 3 years.	*Numerator*: Number of female patients 21 years of age or older who have had documented pap smear in past three years	PMS via Crystal Report –Females 21 years and older with Pap Smear completed between CY 03 - 2006	Baseline: 4%	17% (N=4626/ D=26056)
	Denominator: Number of female patients 21 years or older seen in past three years	PMS via Crystal Report –Females 21 years and older seen between CY 03 – 06		
Goal 6: Increase the number of documented, completed patient referrals to specialty services.				
Anticipated Outcome	**Methodology**	**Data Source**		
Increase the number of documented, completed patient referrals to specialty services.	*Numerator*: All closed documented referrals in CY06.	PMS – Outgoing Referral report – All closed referrals in CY06	Baseline: 34%	6% (N=3178/ D=57327)
	Denominator: All documented referrals in CY06.	PMS – Outgoing Referral report – All referrals in CY06		

Notes:

1. Baseline numbers are representative of the CY2006 from the practice management system
2. EMR Data 12/10 – EMR data warehouse numbers for the reporting period 01/01/10 through 12/31/2010
   TLC, WCHC, CCI, GBMS, OPC – Full year of reporting data
   THC – 10 months of reporting data (Go Live Date 01/31/10 / Substance Abuse 03/31/10)
   HCH – 3 months of reporting data (Go Live data 09/16/10)

Funding the EPRS

- CHIP EPRS Implementation Cost - $5,196,286 Million
  - CareFirst BlueCross Blue Shield – planning & implementation
    $1, 102,729 – 21% of total cost
  - Health Resources & Services Administration –implementation
    $1,400,000 – 27% of total cost
  - Health & Human Services Appropriation – implementation
    $1, 584,900 – 30% of total cost
  - MD Community Health Resources Commission – implementation
    $1,000,000 – 19% of total cost
  - Federally Qualified Health Centers – implementation
    $108,657 –2% of cost (required grant award contribution for HRSA grant)

- CHIP Implementation Costs Parallel National Average
  - $24,627 per provider (national average $44,000 (*Health Affairs*))
  - $649,536 per health center & $99,929 per delivery site
- CHIP Average Annual Maintenance Cost
  - $6,419 per provider (national average $8,500 (Health Affairs))

EPRS Funding - On-going

- On-going financial support of EPRS uses the same financial model CHIP has used since 2001 for on-going practice management system
  - Per license, per month service fee that includes all hardware, communications, application support & Help Desk costs related to PMS & EPRS
    - Includes funded reserve for equipment replacement
  - Service fees are established annually as part of the CHIP budget process
    - Based on the service requirements determined by participants/Board
    - Provide participants/Board with subsequent year projection for budget purposes
    - PMS & EPRS service fees separate so that clients can use one or both systems

- On-going costs to operate electronic patient record systems are financial challenge to health centers & need to be addressed by HRSA, Medicaid, Medicare & commercial insurers
  - Medicaid – at the time the FQHC Prospective Payment System was developed, no health center had an EPRS & EPRS costs were not reflected in the cost reports that formed the basis of today's reimbursement levels
  - Current third party reimbursement & HRSA grants do not include provisions to support cost of electronic patient record systems
    - EPRS support costs erode dollars available for patient care
  - EPRS support costs are 4 times cost of operating a PMS due to complexity of systems, high maintenance levels & data communications, security & redundancy requirements

What We Learned & Know

- EPRS are complex & costly (initially & on-going)
- The outcome is worth it, but do not underplay the costs/time/effort
- Take time to define technical & application requirements
- There is no “off the shelf” EPR solution
- This is not a scanning project
- Designing a network-wide EPRS takes time & resources
- Choose consultants carefully – be sure deliverables, performance expectations & budgets are documented in contract
- Budget sufficient time to learn application features & functionality
- Prepare health centers for impact on their resources & revenue
- Engage staff at all levels of health center organizations in planning & development
- Plan to manage “project weariness” & “data staleness” syndromes
- Communicate, communicate, communicate

CHIP Contact Information

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