



NATIONAL ASSOCIATION OF
Community Health Centers



America's Voice for Community Health Care



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The NACHC Mission

To promote the provision of high quality, comprehensive and affordable health care that is coordinated, culturally and linguistically competent, and community directed for all medically underserved people.

Community Partners HealthNet

**Network Economies of Scale and HIPAA
Compliance in EHR Implementations**

Doug Smith, CEO/CIO



Community Partners HealthNet Data Center

Members

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

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.”

Major Goals of CPH

- EHR/clinical data repository/clinical outcomes tracking.
- Integrated IS services for CHCs and RHCs.
- Web portal/distance learning, teleconferencing.
- Web community

Perspective

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

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

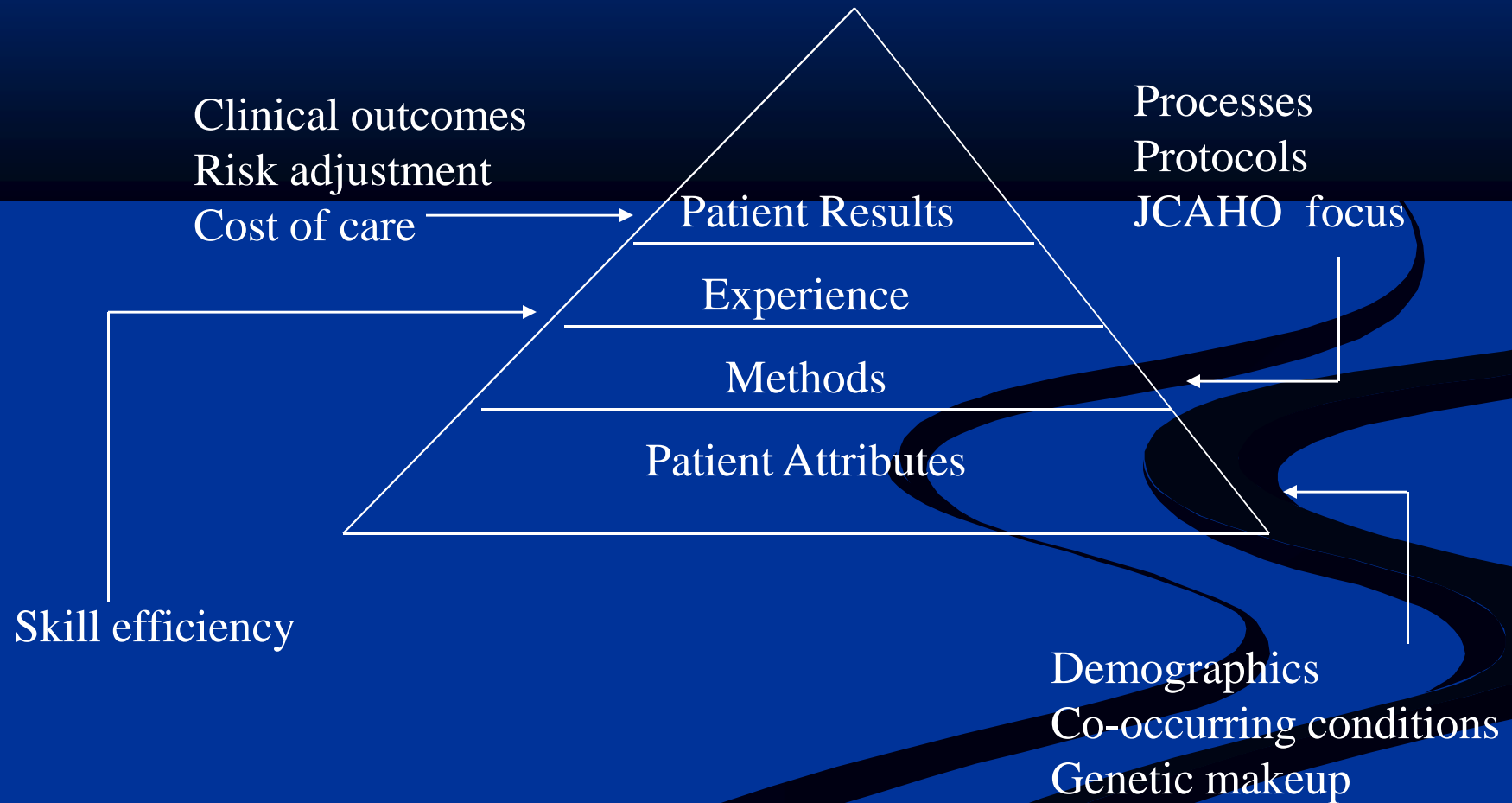
Sir Cyril Chantler, MD

Solution: Redefining Health Care

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

Based on Porter & Teisberg, 2006

Information Hierarchy



CMS/HIPAA Requirements

- Prevention, detection, containment, and correction of security violations
- List of authentication methods used to identify users authorized to access EPHI
- List of individuals and contractors with access to EPHI to include copies pertinent business associate agreements
- List of software used to manage and control access to the Internet

CMS/HIPAA Requirements (cont.)

- Detecting, reporting, and responding to security incidents (if not in the security plan)
- Physical security
- Encryption and decryption of EPHI
- Mechanisms to ensure integrity of data during transmission - including portable media transmission (i.e. laptops, cell phones, blackberries, thumb drives)

CMS/HIPAA Requirements (cont.)

- Monitoring systems use - authorized and unauthorized
- Use of wireless networks
- Granting, approving, and monitoring systems access (for example, by level, role, and job function)
- Termination of systems access
- Session termination policies and procedures for inactive computer systems
- Policies and procedures for emergency access to electronic information systems

CMS/HIPAA Requirements (cont.)

- Password management policies and procedures
- Secure workstation use (documentation of specific guidelines for each class of workstations (i.e., on site, laptop, and home system usage)
- Disposal of media and devices containing EPHI
- Entity-wide Security Plan
- Risk Analysis (most recent)
- Risk Management Plan (addressing risks identified in the Risk Analysis)

CMS/HIPAA Requirements (cont.)

- Security violation monitoring reports
- Vulnerability scanning plans
 - Results from most recent vulnerability scan
- Network penetration testing policy and procedure
 - Results from most recent network penetration test
- List of all user accounts with access to systems which store, transmit, or access EPHI (for active and terminated employees)

CMS/HIPAA Requirements (cont.)

- Configuration standards to include patch management for systems which store, transmit, or access EPHI (including workstations)
- Encryption or equivalent measures implemented on systems that store, transmit, or access EPHI
- Organization chart to include staff members responsible for general HIPAA compliance to include the protection of EPHI

CMS/HIPAA Requirements (cont.)

- Examples of training courses or communications delivered to staff members to ensure awareness and understanding of EPHI policies and procedures (security awareness training)
- Policies and procedures governing the use of virus protection software
- Data backup procedures

CMS/HIPAA Requirements (cont.)

- Disaster recovery plan
- Disaster recovery test plans and results
- Analysis of information systems to include network diagrams listing hardware and software used to store, transmit or maintain EPHI
- List of all Primary Domain Controllers (PDC) and servers
- Inventory log recording the owner and movement media and devices that contain EPHI

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.

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.

Health Center Controlled Networks (HCCN)

- 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 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 and may include other public or private non-profit health care providers who come together to form a network that plans, develops and implements systems that:
 - Improve access to care,
 - Increase efficiency, revenue and productivity and
 - Improve clinical quality and patient health status.

Benefits of Network Implementation

- Economies of scale/cost efficiency
- Volume (licensing discounts, more experienced trainers etc.)
- Higher performance
- Sharing of expertise among collaborators
- Critical mass/business leveraging (i.e. discounted pricing)
- Access to federal and other grant funds for capital costs

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, SQL Server and other Windows software

Economies of Scale (cont.)

- Server redundancy – EHR, \$125,000, clustered servers, disk array, tape carousel, SQL Server and other Windows software
- Network Security- Securify, \$50,000, positive and negative modes, intrusion detection, encryption, used by DHHS and DOD. Over 2 millions emails per second, 70% are spam/viruses.

Economies of Scale (cont.)

- Data Warehouse - Cognos, Data Dictionary, proprietary SQL scripts, \$90,000
- Disaster Recovery – Located in commercial data center in Raleigh, rack and servers, \$100,000, XOSoft and Vice-Versa software, \$15,000, Sync and real-time backup of EHR data, EHR can be failed over to run from that facility
- Existing interfaces

Economies of Scale (cont.)

- Staffing – higher level of training, detailed knowledge of products used, applications, Citrix, etc.
- Training costs - CHC staff turnover is high and lower training costs including web training (Go-to-Meeting, interactive web communities (IAPPS \$15,000) significantly reduce costs across sites.

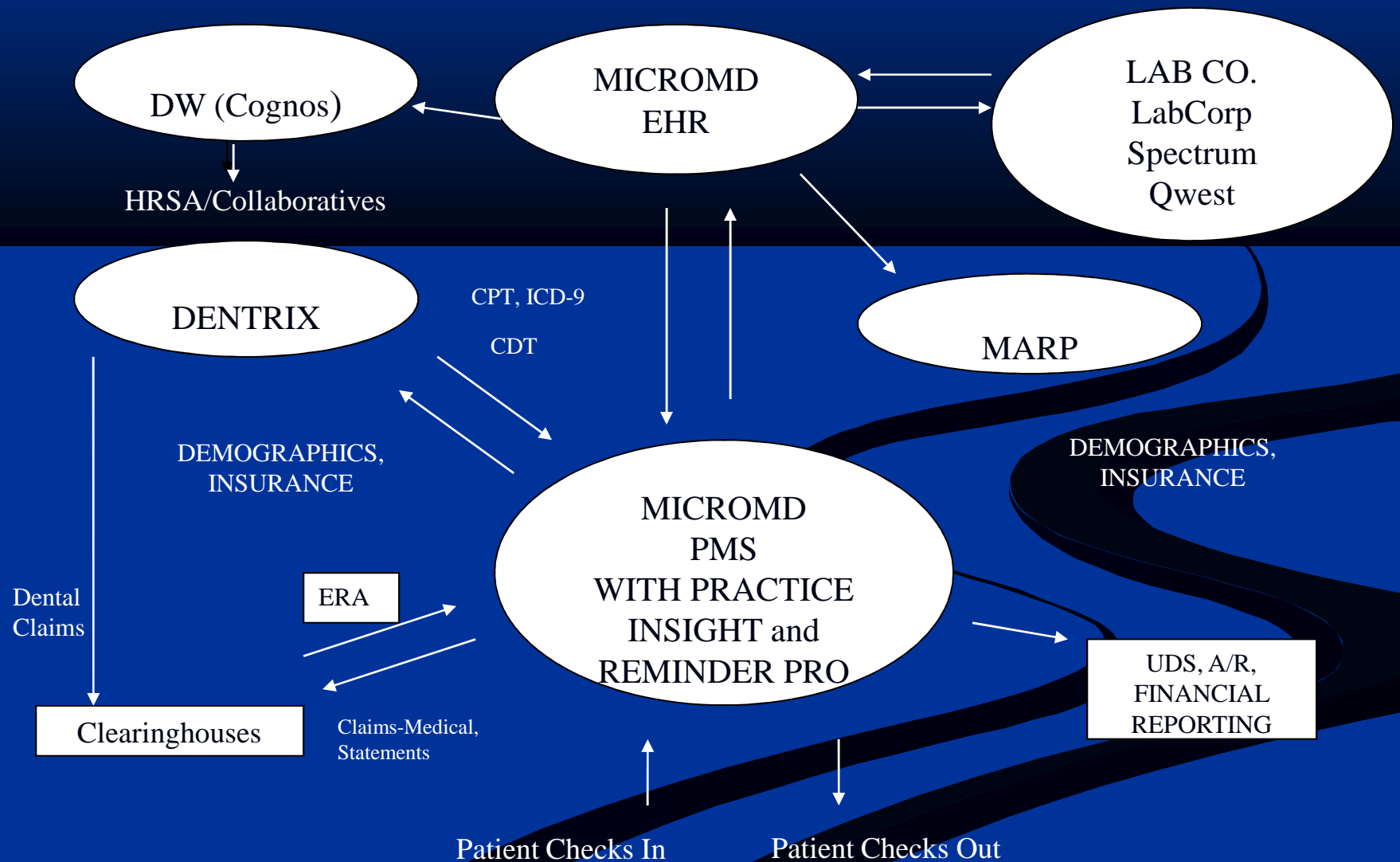
Seven Steps of EHR Planning for Success

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

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 to excellent IT infrastructure and staff (local)

CPH Integrated Applications

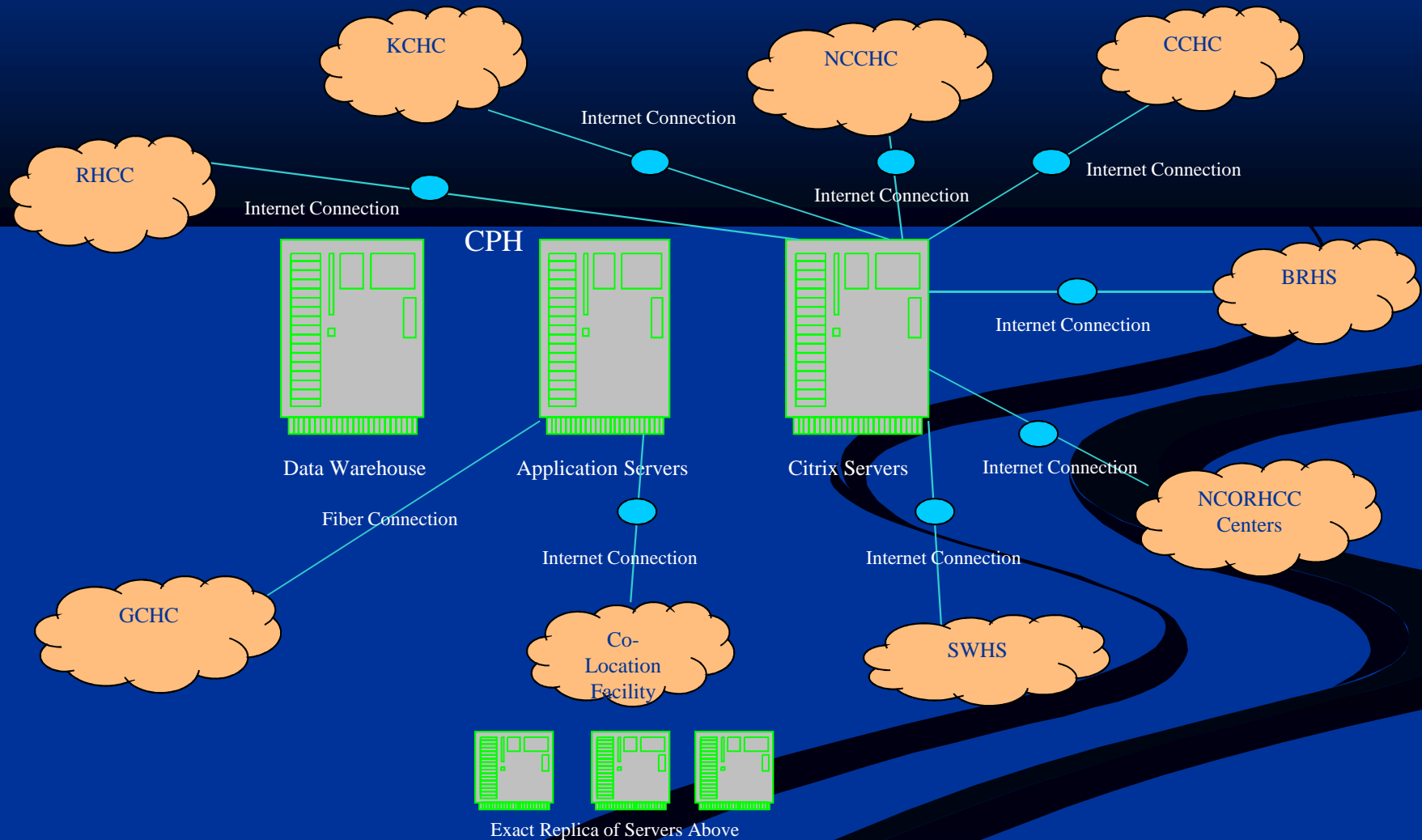


Lessons Learned

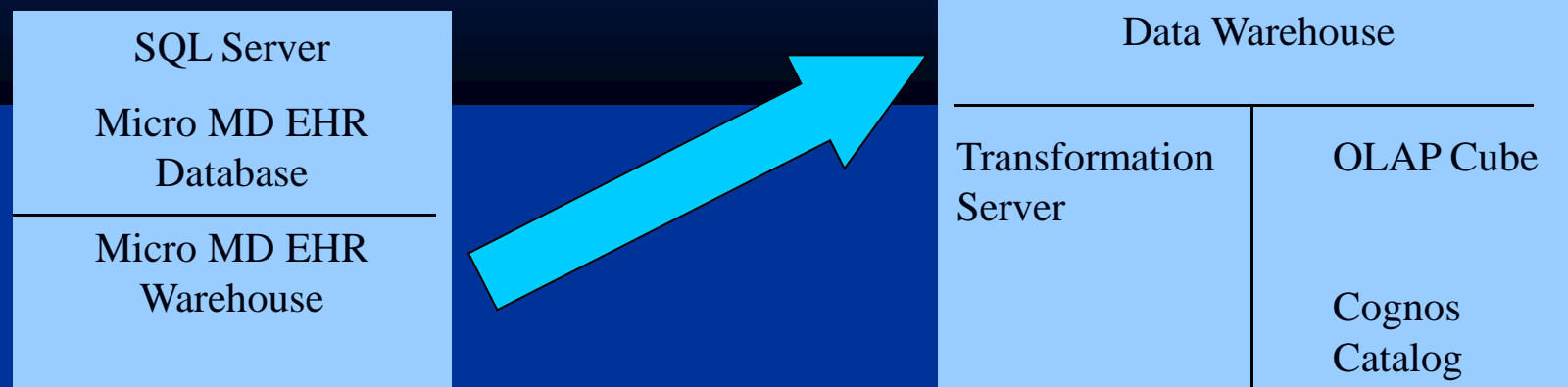
Well done is better than well said.

Benjamin Franklin

CPH Network Schematic



Simplified Design of Data Transfer/Transformation



Creates views, groupings, and events

Henry Schein Medical System has already added additional functionality to Micro MD EHR to create views, groupings (e.g. diabetics, CVD, etc.) and events (e.g. 2 BPs in last year). This data is exported to the transformation server in the data warehouse, which populates the Cognos Catalog and the data cube.

Now That We Have The Data

- Who are our stakeholders?
- How do we best provide them with data?
- What reports need to be designed?
- How do we use the data to improve value of our services to the patient?

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

Uses of Data (cont.)

- Marketing to other stakeholders – JCAHO, hospitals, MCOs, etc.
- Policy research
- More reports

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% |



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Economies of Scale in HCCN EHR Implementations



ALLIANCE OF CHICAGO

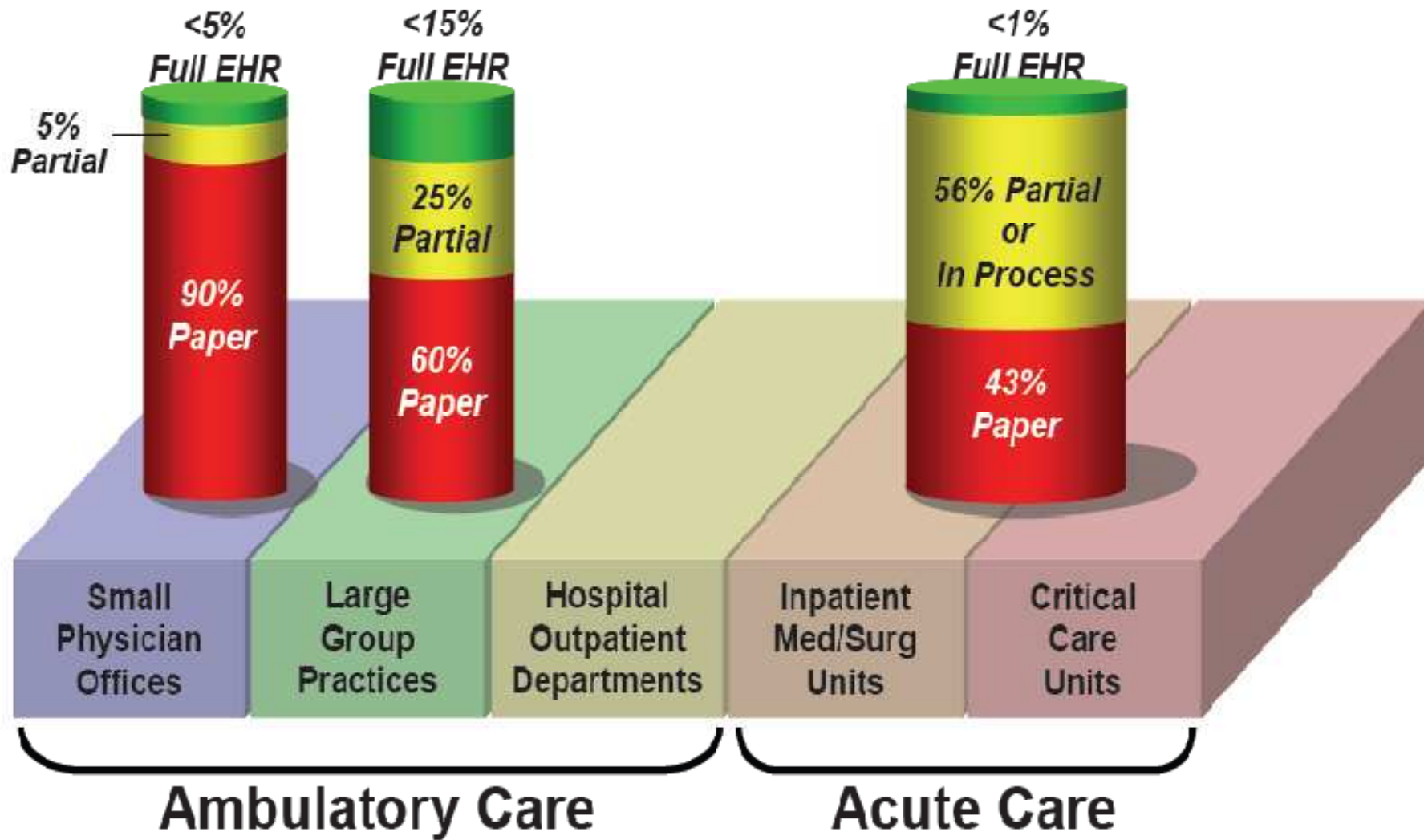
Community Health Services, LLC



“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.

State of EHR Adoption



Capabilities of Electronic Record Systems

Basic

- a storage and retrieval system

Advanced

- a sophisticated interactive database

Typical EHRs

Implementations do not include advance functionality

- Fewer than 10% of physicians are using EHRs with full functionality such as electronic prescribing or computerized order entry.¹
- In community Health Centers and other safety net health care organizations, the major driver for EHRs adoption is quality; financial gains accrue at the system level.²

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

2. The Value of Electronic Health Records in Community Health Centers: Policy Implications, Robert Miller and Christopher West, Health Affairs 26 no 1, (2007)206-214

HIT functions to support quality

- Enhanced availability of Information
- Decision support (active and passive)
- Expanded options for display of information
- Performance measurement
- Reporting (individual and population)

Considerations in Using EHRs as a Tool for Quality

- Vision
- Technical Considerations
- Implementation Considerations

Considerations in implementing higher level functionality: Vision

- Acceptance of common vision of quality by clinicians is required
as well as
- understanding and agreement on the relationship between evidence based recommendations, decision support and quality measures
- Willingness and ability to capture and process relevant data by clinical staff is also required

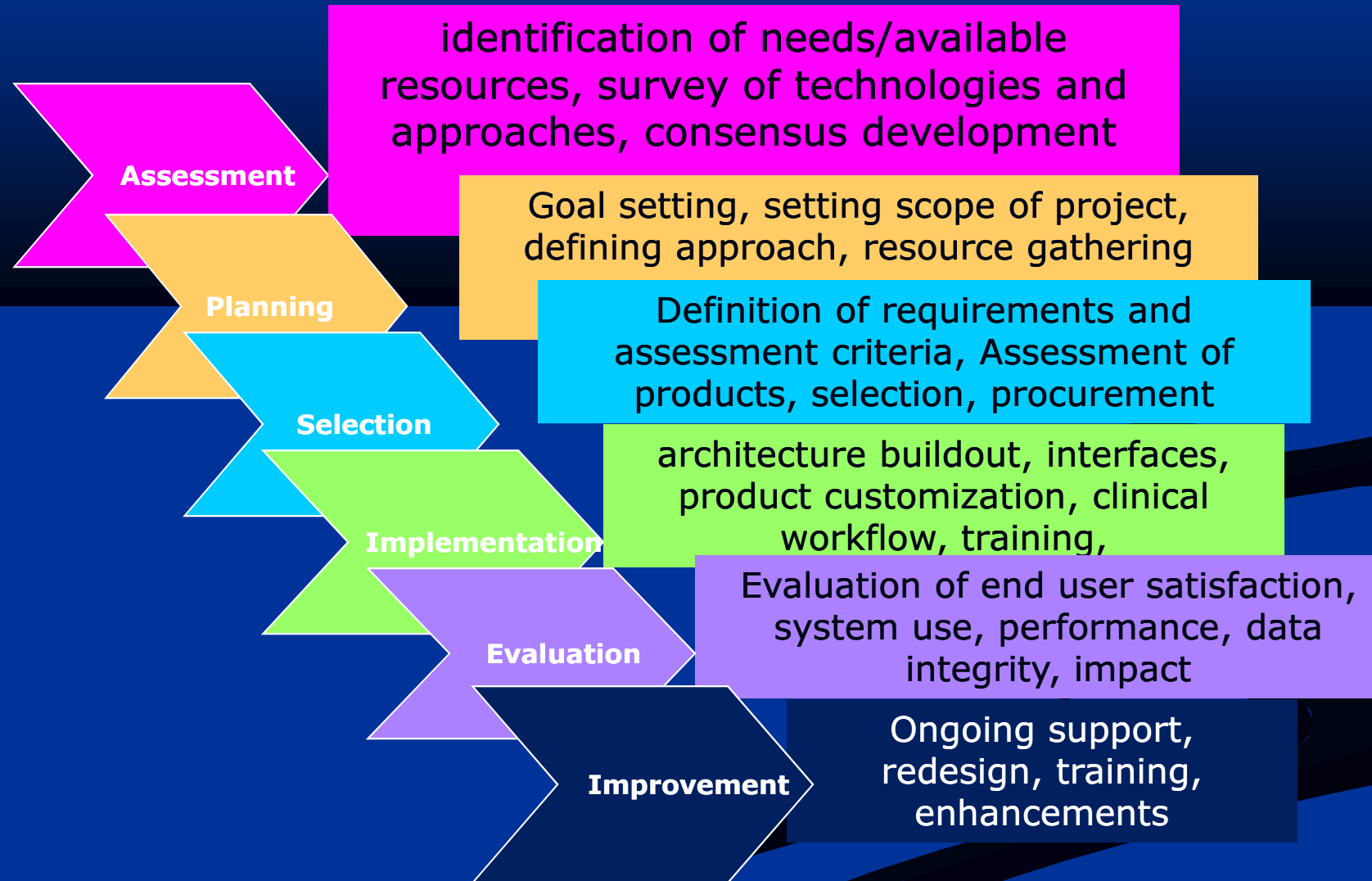
Considerations in implementing higher level functionality: Technical

- Underlying functionality of software must allow data to be defined and captured in uniform ways mapped to practice recommendations and performance measures
- Population level analysis, and algorithms for measures may require more complex analysis or queries than are native to an EMR.
- System must be modifiable as measures and recommendations change over time

Considerations in implementing higher level functionality: Implementation

- Full use of system
- Data capture has to be simple and integrated into the workflow
- Integration with other electronic databases increases efficiency
- Workflow analysis to optimize use
- Infrastructure for using data to make improvements.

Stages in EHRS Implementation



Why a Centrally Hosted/Network approach to EHRs?

- Access more sophisticated resources necessary
- Improve profile with vendors
- Reduce Cost
- Leverage accumulated knowledge and experience
- Develop CHC sector resources to reduce dependency on commercial vendors
- Provide opportunities for Clinical collaboration and data sharing.
- Address gaps in commercial products and services.

Network Service Categories

VENDOR NEUTRAL

Planning
Business Case
Preparation/
Clinical Leadership development
Resource Development
Clinical Content
Data schema
Hosting
Equipment selection procurement
IT Technical Expertise

VENDOR DEPENDENT

License procurement and management
Detailed application setup
Specific deployment strategy/
business case
Training
Interface development
Content customization

CROSS OVER

Quality Improvement
Approaches to system use

Generic processes

IT Infrastructure development
Workflow analysis

Output of data, analysis
Reporting formats

Optimization of Use

Project Management

Implementation

Data/Reporting

Ongoing development
Training

Product specific implentation tasks

Setup
Workflow redesign

Data capture and extractions



Health Center

Network

Vendor

No Vendor or product is ideal



Cost savings

- Reduced license and professional service fees
- Reduced dependency on vendor services
- Centrally provided software services
- Shared hosting fees
- Common reporting infrastructure Shared staff resources for ongoing support and optimization

Services provided by the Alliance

- Procurement and management of licenses
/Vendor relations
- Hosting
- Clinical content development
- Implementation support
- Help desk
- Development and management of
interfaces
- Optimization of Use

Procurement and management of licenses

- Selection of product
- Negotiation of price/services
- Tracking usage
- Payment of Support fees
- Upgrades and enhancements
- Vendor relations

Hosting

- Centralized architecture to increase privacy, security and redundancy
- Shared architecture to lower cost
- Higher level of expertise
- Balance between cost and level of sophistication

Considerations of Technical Architecture

- Hosting in a secure level 3 facility
- Redundant architecture and secure backup
- Ability to access system anywhere via internet
- Interface engine to build and manage interfaces
- Export of data to a data warehouse

Clinical content development

- Adaptation of software to optimize for CHC use
- Ability to support more robust clinical decision support
- Sharing of clinical expertise both internal and external
- Benchmarking of clinical standards
- Reporting

Implementation support

- Covers change management, project planning and management, workflow analysis and redesign, data conversion, training and go-live support
- Clinical leadership development and support
- Implementation strategy and tools
- Knowledge transfer to lower dependency on vendor
- Improved Community Health Center relevance and competency
- Lower than vendor/market cost for professional services
- Opportunities for sharing among Health Centers

Help desk

- Fill space between Health Center and vendor
- Identify and address trends in requests for support
- Identify and escalate issues which are vendor related

Development and management of interfaces

- Negotiation with vendors
- Interface engine
- Staff expertise to build and monitor interfaces

Optimization of use

- Reporting
- Ongoing monitoring and evaluation
- Ongoing training
- Enhancements
- Clinical quality improvement

Center level costs

- IT infrastructure
 - Hardware and equipment
 - Connectivity
 - Additional software acquisition/upgrade
- Data Conversion
- Interface construction
- Implementation (staff time)
- Productivity loss

Services included in recurring charges which would otherwise accrue at Center level

- Hosting
- Monitoring
- License management/upgrades
- Vendor relations
- Interface development and maintenance
- Ongoing development of functionality and content
- Maintenance of customized CHC content and reporting
- Standard Report design and production

Cost savings

- Reduced license and professional service fees
- Reduced dependency on vendor services
- Reduced investment in knowledge acquisition at Center level
- Centrally provided software services
- Shared hosting fees
- Common reporting infrastructure
- Shared staff resources for ongoing support and optimization
- Group level purchasing power

Questions and discussion

Sources of Assistance

<http://www.hrsa.gov/healthit>

<http://healthit.ahrq.gov>

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