

HIT & Electronic Medical Records Information Technology at Cambridge Health Alliance



Integrated Care Delivery Innovations NAPH Webinar May 1, 2013

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SVP Information Technology & Strategic Planning
Chief Information and Strategy Officer**



Cambridge Health Alliance

Agenda

- Cambridge Health Alliance (CHA) Overview
- Information Technology at CHA
- Intersection of Strategy, Operations and IT Solutions
- Discussion/Questions



Cambridge Health Alliance History

- Created in 1996 with the merger of two Boston-area hospitals - Cambridge City Hospital and Somerville Hospital; Acquired Whidden Hospital in Everett, MA in 2001
- Operates a network of 20 plus primary care and specialty locations
- Places special emphasis on preventive care and in serving the area's most vulnerable and diverse population (Safety Net, Disproportionate Care /DSH)
- Regional, academic healthcare system: only remaining public health system in Massachusetts



Overview of Cambridge Health Alliance: Integrated Healthcare System

- Hospital: 3 campuses with 24-hour Emergency Services:
- Community-based Primary Care and Mental Health Services:
- Public Health
- CHA Foundation
- CHAPO-CHA Physicians Organization (Medical Services Organization only)
- Teaching affiliations with:
 - Harvard Medical School, including innovative longitudinal 3rd year integrated clerkship
 - Tufts Univ. School of Medicine
 - Harvard School of Public Health Teaching Affiliate
- Residency Programs



FY 12 Snapshot

Total System Operating Budget:	\$810 M
Delivery System Operating Budget (Hosp & MD):	\$543 M
Number of Beds (M/S, Critical Care, OB, Psych):	264
Total Discharges:	13,345
Average Daily Census:	177
Number of Outpatient Locations:	28
Total Outpatient Visits:	664,875
Total Emergency Dept. Visits:	98,937
Number of Employed FTEs:	
- Hospital	2,921
- CHAPO	315



Regional Safety Net Provider

Critical Government Funding Stream

- Largest proportional provider of care to low income individuals in the State
- Care for uninsured patients from over 230 MA communities: 3 times greater Medicaid and low income public payer mix and 4.4 times greater uninsured care than statewide acute hospital average
- Many patients travel to overcome access-to-care barriers (uninsured or under-insured, culturally and linguistically appropriate care)
- 40% of patients speak language other than English



Safety Net Provider – *continued*

- Leading state-wide acute hospital provider of inpatient psychiatry
 - 11% of all statewide inpatient mental health stays
 - 27% of all statewide mental health stays for the uninsured
 - greater than 30% of our patients and 53% of our mental health patients come from outside our 7-town primary service area
- Rely on ADEQUATE SUPPORT from the State and Federal government to provide this care (Supplemental Revenues; “DSH” funds).



CHA's FY 13 Strategic Focus Areas

- Develop and implement multi year plan for financial sustainability
- Improve patient experience of care
- Complete strategic partnership/clinical affiliation
- Continue investment in transformation:
 - Clinical practice transformation to Patient Centered Medical Home model of care
 - Ability to accept alternative means of financing through development and investment in Accountable Care Organization infrastructure



IT Guiding Principles

1. Support Alliance strategic directions and key initiatives
2. Use systems and technology to enable change, reduce waste, enhance productivity, improve efficiency and facilitate patient safety and centeredness
3. Leverage existing investment in technology and applications
4. Introduce new technology that offers a strategic and cost advantage; that is flexible, stable, and increases access to data
5. Partner with administrative and clinical leadership
6. Continuously improve overall IT performance, leadership, and service



IT Guiding Principles - *continued*

7. Continuously improve IT staff satisfaction: provide career progression opportunities, satisfying and challenging work and a supportive work environment
8. Utilize web based/rapid development for small to medium applications to complement major vendor reliance
9. Implement intuitive, user friendly design/tools
10. Provide accessible data that is consonant with the Baldrige principle of being a data driven organization
11. Leverage system integration tools which support interfacing key systems to enhance clinical data flow, improve demographic data and streamline billing



Oversight- Information Technology Steering Committee (ITSC) Objectives

- Ensure that Information Technology efforts are in sync with Cambridge Health Alliance priorities, its mission and goals
- Provide executive sponsorship of projects
- Ensure that there is a high degree of coordination between clinical, business and information technology departments
- Provide oversight and/or approve Information Technology projects of a moderate to large scale
- Help resolve project priority conflicts
- Review proposals for non-funded requests and assist in obtaining contingency funding where appropriate
- Review annual project budgets (capital and operating) and ensure projects meet Cambridge Health Alliance's needs
- Review IT service metrics and monitor performance improvements



CHA – IT Prioritization Challenges

- Multiple demands, constrained funds
- Complexity of system interfaces and integration
- Clinical vs. administrative system needs
- No new programs, services without IT involvement/assessment of resources
- Management of human resources and workload: Intense local competition for Epic trained resources



CHA's EHR – Strategic IT Investment and the Operational Implications

- Electronic Health Record Deployment
 - Ongoing provider and staff training on application-ongoing changes
 - Workflow changes
 - Physical plant changes
 - Job responsibility changes/Labor impact
 - Provider time and engagement for ongoing application changes
 - New process supports
 - Equipment/devices – infection control, ergonomics, general usage, security
 - Patient use and expectations
 - Issues of integration for unique services (Dental, Elder Service Plan, Occupational Health)



FY'13 IT Support of System Strategy

- Leverage EHR investment
- Achieve Meaningful Use Requirements – Stage 1 audits and prepare for Stage 2, Quality Measures and Objectives
- HIE
- Invest in Robust Data Analytics & Reporting (business intelligence software) to support:
 - Achievement of regulatory, payer and quality reporting requirements, including Clinical Decision Support
- Mobile and Cloud Computing
- ICD-10 Conversion
- Patient self management



CHA – Strategic IT Investment and Operational Implications ACO & PCMH Development

- Shift to managing a population means need for whole new data set – enrolled members/patients total claims experience
- Development of a HIPAA compliant data repository shared between payer and ACO (delivery system, MD group or other)
- Analytics to model cost and utilization at the population, patient and system level over time; and to assess new contract proposals, tiered network development to manage cost
- New reporting requirements and development of regular scorecards for use by executive team and at practice level to share cost and quality and outcomes trends
- NCQA PCMH Accreditation – reporting required for panel definitions, population health outcomes including chronic care management results



ACO Development: Population Health Interventions

- Creation of data repository using EMR/claims data
 - Collaboration with Community Based Partners
 - Mapping of all patients by address with smoking behavior identified on EMR problem list
 - Identification of “hot spot” areas in communities served by CHA
 - Collaboration and linkage with City Housing Authority to impact behavior and practice, provide group interventions at Housing Authority sites, build referral lists, etc.
 - Identification of Employee Wellness Needs
 - Use of claims data/diagnoses to identify service utilization to understand population health needs of employee population
 - Development of associated smoking cessation, exercise programs, self management programs to reduce days lost at work, reduce premium costs for employer



Multilingual Services/Patient Services Dispatching

- Operational Problem:
 - \$6m annual budget; 150 interpreters; 3 campuses & 12 health centers; 24x7 access needs
 - Regulatory requirement to assure linguistically appropriate care
 - Unsustainable cost growth; need for improved telephone access
- Solution:
 - Development and deployment of web based interpreter request and dispatching system
 - Integrated voice recognition application to allow interpreters to complete service call
 - Deployment of dual handle phones for 3 way conversation with remote interpreters
 - Automatic rollover to contracted language services as needed if on site capacity in full use
 - Deployment of video interpreting system-wide supports efficient use of remote pool of interpreters
- Results:
 - Tracking of interpreter productivity; type and duration of services
 - Ability to service more calls with fewer staff
 - Application has been expanded to support system-wide transport requests



Patient Engagement:

- Many system-wide efforts leveraging the EHR in improving quality and patient care while also meeting Meaningful use requirements
- Implementation of multiple solutions via a patient portal:
 - Patients documentation of their own glucose, blood pressure, peak flow and weight readings in flow sheets that are integrated in the electronic medical record
 - Automatic release of specific lab results
 - Preventive care and PHQ9 questionnaires
 - Prescriptions renewal, request medical advice and appointments
 - Patients can download relevant pieces of their medical record to USB or personal computer



CHA – IT Solutions to Operational Demands: CHA Intranet

The screenshot shows the StaffNet intranet interface within a Windows Internet Explorer browser window. The browser's address bar displays 'http://staffnet/'. The page features a blue header with the 'staffnet' logo and the tagline 'CHA Caring for Our Community'. Below the header is a navigation bar with tabs for 'TOOLS', 'STAFF', 'DIRECTORIES', 'REFERENCE', 'CLINICAL', 'REPORTS', and 'ACADEMIC'. A 'MY LINKS' section includes links to 'Phones', 'ITReqs', 'Portal', 'Time', 'I*Net', 'Surveys', and 'People'. The main content area is titled 'WELCOME TO staffnet' and includes a 'SEARCH' box with a 'GO' button and links to 'How to Search', 'Advanced Search', and 'Site Map'. The 'TODAY'S NEWS' section, dated 'Tuesday, Feb-1-2011', contains three articles: 'Winter Storm' (forecasted for late Tuesday and Wednesday), 'Diabetes in pregnancy a risk for mom years later' (a type of diabetes that disappears at birth), and 'NH hospitals surveyed on economy' (half of hospitals reported an increase in uninsured patients). The right sidebar contains several sections: 'HOUSE COUNT' (CHA 207, CH 115, WH 92), 'E.D. WAIT TIME' (CH 1 min, WH 1 min, SH 0 min), 'NEW & IMPROVED' (Bedbugs, Influenza 2010-2011, MD Suspension List, Norovirus Alert), 'SHORTCUTS' (eBeat, How to use Staff.Net), 'JCAHO' (Joint Commission News), and 'CHA MISSION'.

StaffNet - Windows Internet Explorer provided by Cambridge Health Alliance

http://staffnet/

File Edit View Favorites Tools Help

StaffNet

WELCOME TO **staffnet** CHA Caring for Our Community

MY LINKS: • Phones • ITReqs • Portal • Time • I*Net • Surveys • People • Modify My Links

TOOLS STAFF DIRECTORIES REFERENCE CLINICAL REPORTS ACADEMIC

SEARCH

GO

How to Search
Advanced Search
Site Map

TODAY'S NEWS

Tuesday, Feb-1-2011

Winter Storm
February is almost here and we have another very significant winter storm forecasted to reach Massachusetts beginning late Tuesday morning, February 1 and continuing until late Wednesday evening, February 2. **All Cambridge Health Alliance clinical and operational services are scheduled to be open for regular business Tuesday and Wednesday. CHA leadership will assess and make adjustments to this plan as necessary based on weather conditions.** We will update this information again on Staff.Net by noon on Tuesday, Feb. 1. (Feb-1-2011)

Diabetes in pregnancy a risk for mom years later
A type of diabetes that strikes during pregnancy may disappear at birth, but it remains a big red flag for moms' future health -- one that too many seem to be missing. (Boston Globe, Feb-1-2011)

NH hospitals surveyed on economy
In results released Monday, half of the hospitals said the proportion of uninsured patients coming to their emergency rooms had increased in the last year. Twenty percent reported seeing a significant increase in such visits. (Boston Globe, Feb-1-2011)

HOUSE COUNT
CHA 207 CH 115
WH 92

E.D. WAIT TIME
CH 1 min WH 1 min
SH 0 min

NEW & IMPROVED
Bedbugs
Influenza 2010-2011
MD Suspension List
Norovirus Alert

SHORTCUTS
eBeat
How to use Staff.Net

JCAHO
Joint Commission News
Which patients are most appropriate for influenza and pneumococcal vaccine?

CHA MISSION

Done

Start

Inbox - Microsoft Outlook Microsoft PowerPoint - [...] Microsoft Word

StaffNet - Windows In...

Local intranet 100%

7:33 AM
Tuesday



CHA – IT Solutions to Operational Demands: Data Portal

StaffNet - Windows Internet Explorer provided by Cambridge Health Alliance

http://staffnet/Reports/ClinicalEmergencyDepartment.asp

WELCOME TO **staffnet** CHA Caring for Our Community

MY LINKS: Phones • ITReqs • Portal • Time • I*Net • Surveys • People • Modify My Links

TOOLS STAFF DIRECTORIES REFERENCE CLINICAL REPORTS ACADEMIC

SEARCH

GO

How to Search
Advanced Search
Site Map

REPORTS

Emergency Department

- Ambulance Committee
- Average Hourly Volume of Patients Registered in ED
- Cardiac Emergency Inpatient Admits (Acrobat)
- ED Daily Volume Report
- ED Interpreter TAT Qrtly Comparison Report (Acrobat)
- ED Mental Health and Substance Abuse Mthly TAT Report (Acrobat)
- ED Mental Health and Substance Abuse Qrtly TAT Report (Acrobat)
- ED Monthly Statistics by Campus
- ED Monthly Statistics for CHA
- ED Registrations by Hour (Acrobat)
- Emergency Inpatient Admits (Acrobat)
- Emergency TAT QUARTERLY Report (Acrobat)
- Emergency TAT Report (Acrobat)
- Monthly ED Admit Time Intervals (Acrobat)
- Ortho Emergency Inpatient Admits (Acrobat)
- Patient in Progress
- Stroke Emergency Inpatient Admits (Acrobat)
- Summary of Physician Admitting Orders (Acrobat)

Created: 2/1/2011 7:30:41 AM

Tools Staff Directories Reference Clinical Reports Academic Contact Us Site Map Help

Local intranet 100%

Start

Inbox - Microsoft Outlook Microsoft PowerPoint - [...] Microsoft Word StaffNet - Windows In...

7:34 AM Tuesday

CHA – IT Solutions to Operational Demands: Meaningful Use Tracking Tool

StartDate EndDate
 Location

1 of 2 ? 100% Find | Next



My Chart Status for Unique Patient Visits per Location and Provider

[Link to Total CHA count of MyChart Status](#)

		UNIQUE PATIENTS	MYCHARTPT ACTIVE	INACTIVATED	ACCESS CODE GENERATED	DECLINED	ACTIVE %	ACTIVE & ACG %
		77	3	0	8	0	3.90	14.29
		8	0	0	1	0		12.50
		63	7	0	6	0	11.11	20.63
		51	5	0	4	0	9.80	17.65
		85	9	0	4	0	10.59	15.29
		68	9	0	7	2	13.24	23.53
		104	13	0	4	0	12.50	16.35
	Total Clinic	456	46	0	34	2	10.09%	17.54%



CHA – IT Solutions to Operational Demands: Meaningful Use Tracking Tool



Meaningful Use - Quality Measures for EP's

Report Updated: 11/26/2012

Report Data 8/18/2012- 11/15/2012

Core Set

0013 - Hypertension: Blood Pressure Measurement
0028 - Preventive Care and Screening Measure:
Tobacco Use Assessment/Tobacco Cessation
Intervention

0421 - Adult Weight Screening and Follow-Up
(above 18 years)

Alternate Core Set

0024 - Weight Assessment and Counseling for
children and Adolescents

0038 - Childhood Immunization Status

0041 - Preventive Care and Screening: Influenza

Menu Set

0002 - Appropriate Testing for Children with Pharyngitis

0004 - Initiation and Engagement of Alcohol and other Drug
Dependence Treatment

0018 - Controlling High Blood Pressure

0027 - Discussing Tobacco Use Cessation Medications and Strategies

0036 - Use of appropriate Meds for Asthma (Ages 5-50)

0047 - Asthma Pharmacologic Therapy

0059 - Diabetes HbA1c Poor Control

0105 - Anti-Depressant Medication Management

DEPT NAME	PROV ID	PROV NAME	Core Set			Alternate Core Set			Mei			
			0013	0028	0421	0024	0038	0041	0002	0004	0018	0027
1-Expected (Year 1 - 90 Day												



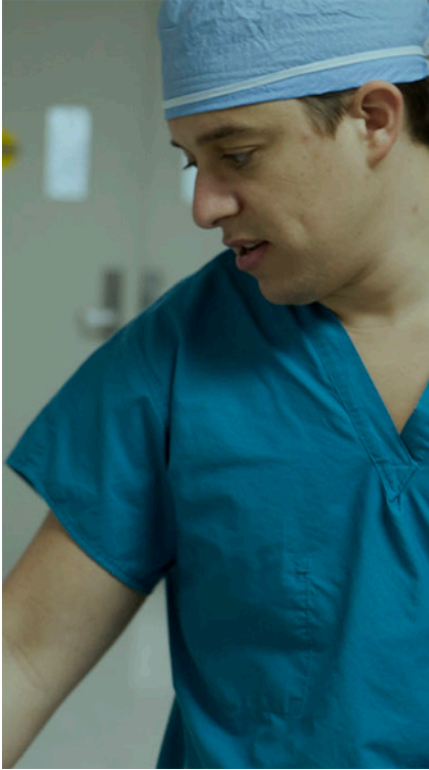
IT Solutions to Operational Demands means Reliance on IT

- Multiple drivers for IT-Operations planning:
 - Data/analytics
 - Marketing/business development
 - Financial planning/assessment
 - Applications for specific service line/departmental core support
 - Safety and Quality infrastructure
 - Communications
 - Regulatory compliance
 - Integration/networking with external parties



Discussion/Questions





HARRISHEALTH
SYSTEM

Common Sense Strategies for Uncommon Times

Presented by Tim Tindle, Executive Vice President & Chief Information Officer

Agenda

Overview Harris Health System

Integrating the Healthcare Delivery System

Today and Tomorrow's Challenges

Open Discussion

Caring for Harris County, Texas

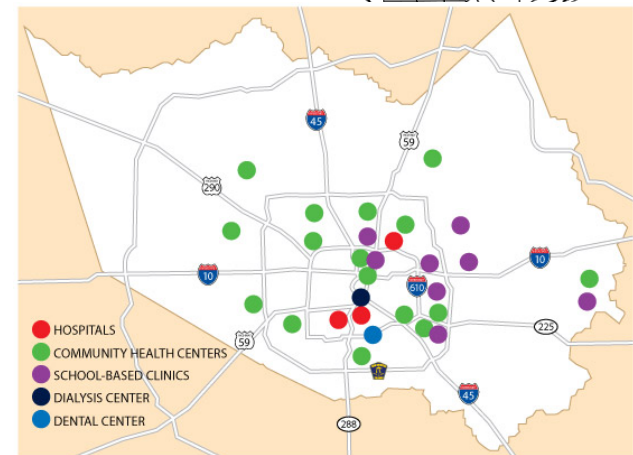
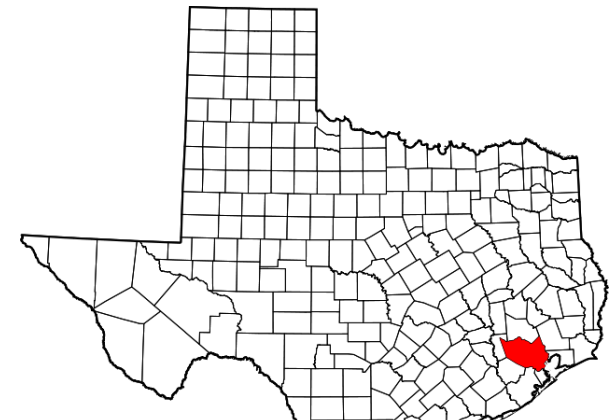
Population: 4,180,894 (2011)

Most populous in Texas

3rd most populous in U.S.

1.25 million uninsured

- Current: 311,000 unduplicated lives
- Projected: 375,000 unduplicated lives



Who We Are



Created by Harris County voters in November, 1965

- Safety Net Provider
- Serving Uninsured & underserved

Our workforce

- 8,500 employees
- 4000 Physicians & Students
- \$1.2 billion annual budget

Volumes (FY2013)

- Outpatient visits - 1,742,429
- Hospital admissions - 48,544
- Births (babies delivered) - 6,643
- Emergency visits - 173,651

Our Hospitals



Harris Health – Ben Taub Hospital

- 586 licensed beds
- Level I Trauma Center
- Only regional psychiatric emergency center
- Teaching hospital for Baylor College of Medicine



Harris Health – LBJ Hospital

- 328 licensed beds
- First and busiest Level III Trauma Center in Texas
- Teaching hospital for UTHealth



Harris Health – Quentin Mease Hospital

- CARF Accredited Physical Medicine and Rehabilitation
- Geriatric skilled nursing

Ambulatory Care: Wellness & Prevention

16 community health centers

- Primary Care

7 school-based clinics

Dental center

Dialysis center (22 stations)

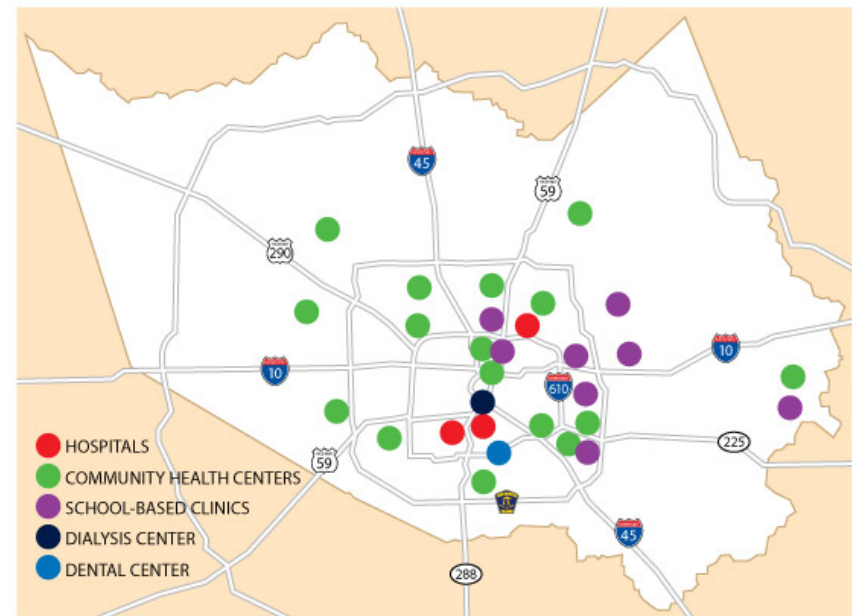
15 homeless shelter clinics

5 mobile health units

- Immunization and medical outreach programs

HIV/AIDS treatment center

3 specialty and diagnostic locations



INTEGRATING THE HEALTHCARE DELIVERY SYSTEM

EHR Vision

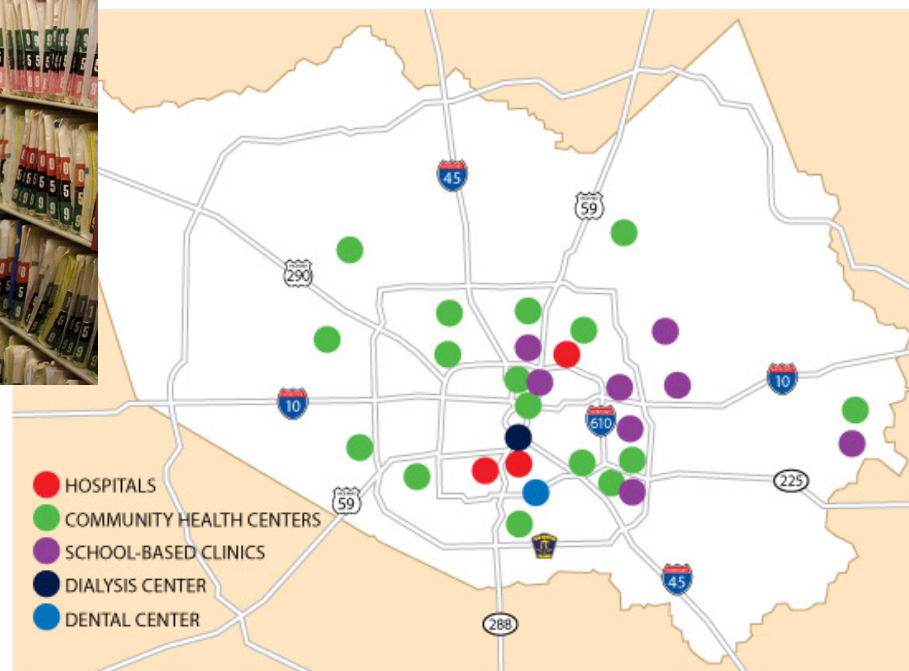
Single electronic health record across continuum of care.

- Single source of truth
- Primary, Specialty, Acute, Sub-Acute
- Available across our system

Facilitate & coordinate access to care

Provide analytics for managing the health of our community and for process improvement

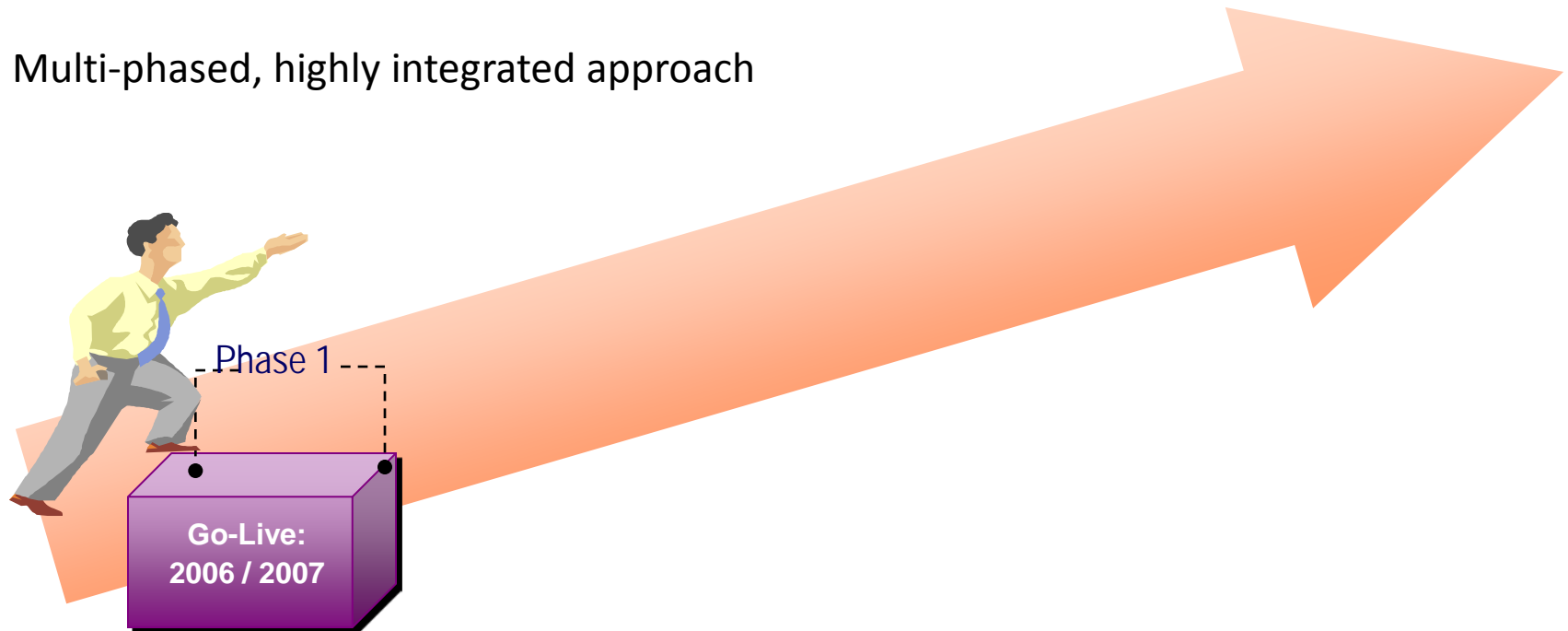
Medical Records Before...



Harris Health EHR Implementation

Our Journey

Multi-phased, highly integrated approach



**Base EHR - Clinical
Repository**

Ambulatory EHR

IP Clerk Order Entry

Epic Ambulatory EHR

Physician Order Entry & Documentation

- (100% Adoption)

Electronic Prescribing (e-Rx)

Nurse Documentation

Clinical Decision Support

Health Maintenance

My Health Patient Portal

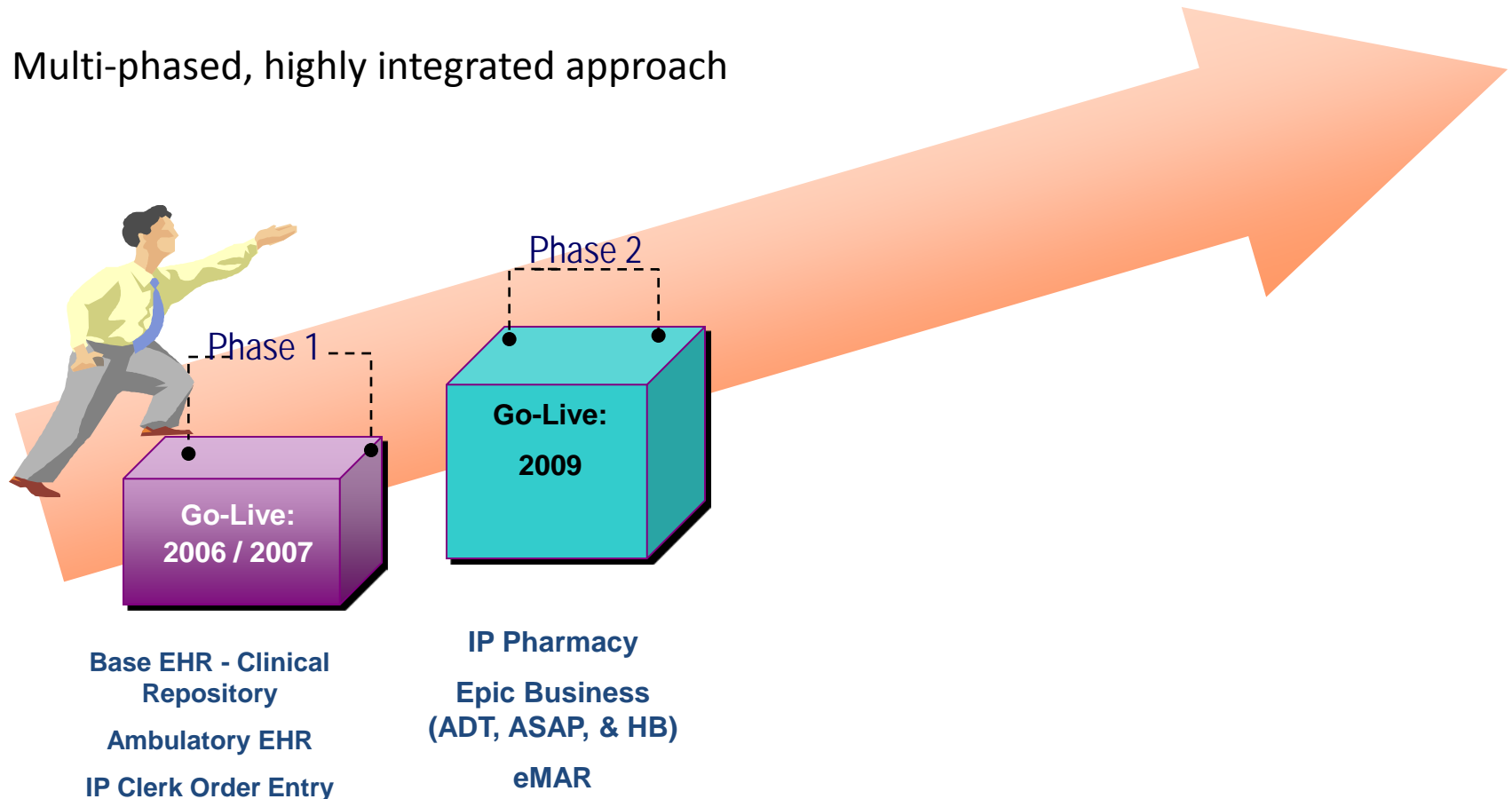
Electronic Signatures

Information / Analytics

Harris Health EHR Implementation

Our Journey

Multi-phased, highly integrated approach



Epic Business System

Patient Access

- Registration
- ADT (Admission, Discharge, Transfer)
- Enterprise wide appointment scheduling
- Emergency department system

Patient Accounting

- Billing
- Collections & Follow-up
- Payments

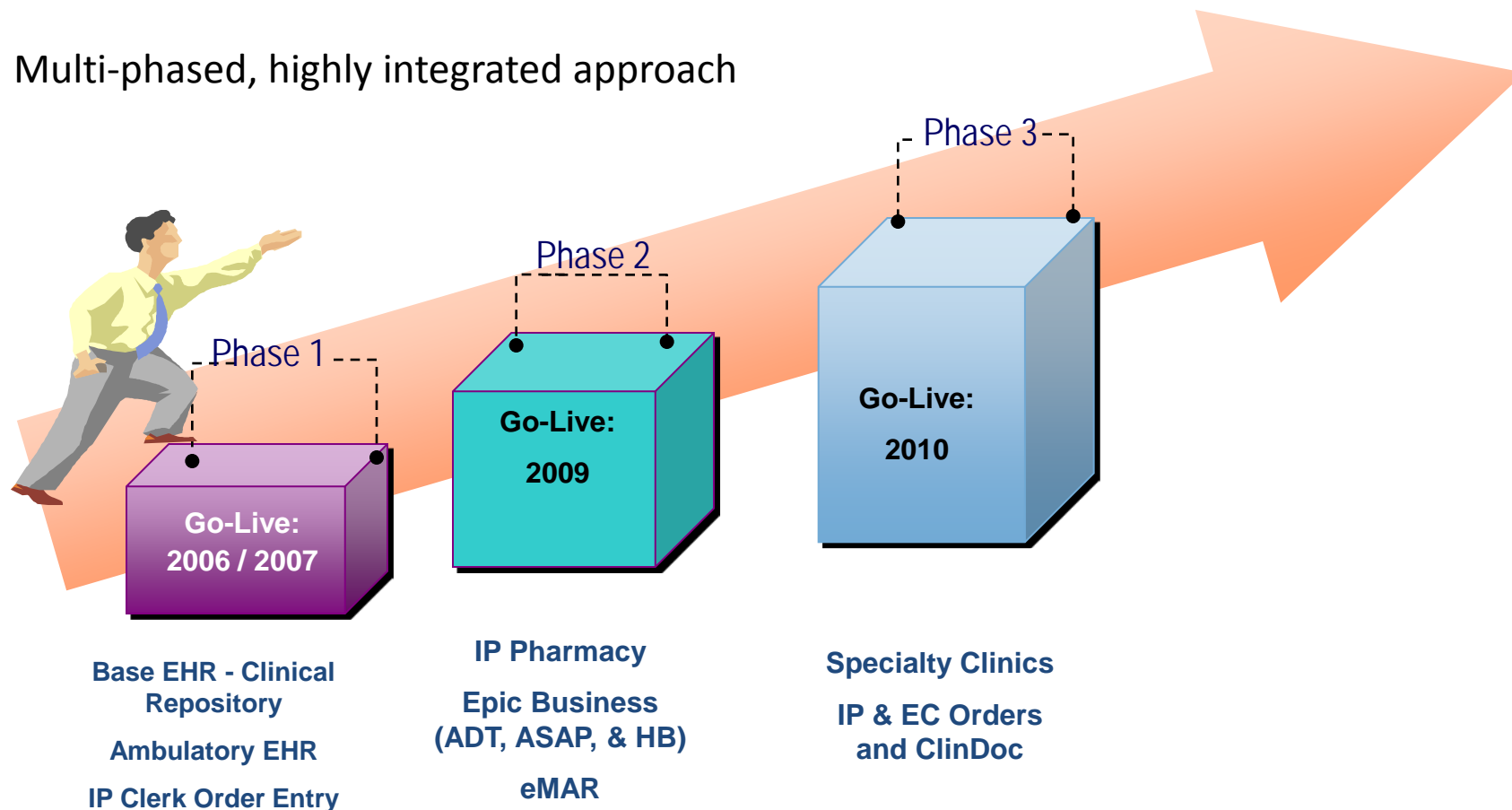
Health Information Management

- Coding/Abstracting – outpatient accounts
- Chart Deficiencies
- Chart Tracking – charts for patients
- Release Of Information

Harris Health EHR Implementation

Our Journey

Multi-phased, highly integrated approach



Epic Inpatient & EC EHR Projects

Epic Inpatient Pharmacy

Physician Order Entry & Documentation

Nurse Order Entry & Documentation

Allied Health Documentation

eMAR (Electronic Medication Administration Record)

Electronic Signatures

Wireless Infrastructure

Mobile Computing Devices

COORDINATION OF CARE HARRIS COUNTY SAFETY NET

Coordination of Care Within Harris Health

Referral Management

- 306,163 Specialty Clinic Visits last year
- 21,369 Surgical Cases
 - 10,123 Outpatient Surgery Cases
 - 11,246 Inpatient Surgery Cases
- Referral Guidelines
- Case Management Support
- Enterprise Scheduling

Coordination of Care With Affiliates

Referral Management

- External requests and clinical records
- Interface to case management

Affiliate Read Access to EHR

- 10 Federally Qualified Health Centers (FQHCs)
- County Jail

Extending Our EHR

- Select affiliated local safety net organizations
 - Houston Healthcare for the Homeless
 - FQHC – Denver Harbor

Health Information Exchange

Epic EHR to Epic EHR

- Comprehensive Medical Record Exchange
- Worldwide

Non-Epic EHRs

- Continuity of Care Document Exchange
- Standard adopted by vast majority of EHR vendors

Coming Soon

- Integration with local HIE (Greater Houston Health Connect)

Physician Adoption

- Integrated into existing EHR
- Minimal workflow adjustments for care teams

Current EHR Status

Live In All Hospitals & Outpatient Facilities

Virtually 100% Adoption

- > 3400 Physicians
- > 1200 Medical Students
- > 2300 Nurses
- > 2000 Allied health professionals

More than 5,000,000 Patient Visits Using CPOE
& Clinical Documentation

Accomplishments

Access

- Enterprise Scheduling
- Centralized patient appointment center
- Improved access
- Better information on community need

Medical Home Initiative

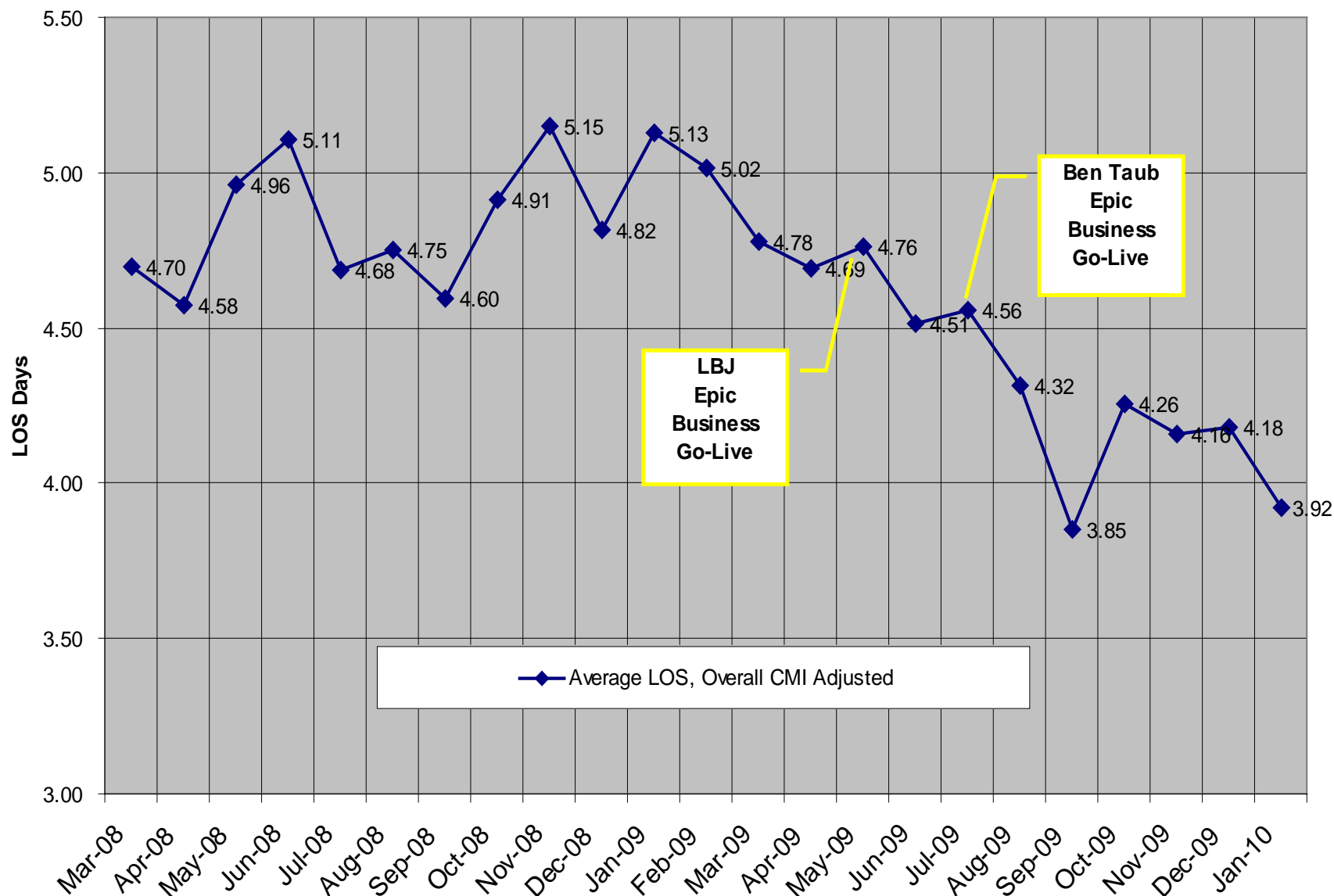
- Jan 2011: Clinics designated NCQA Medical Home

Quality

- Track/trend patient progress over a period of time
- Prevent duplication/unnecessary tests
- Standardize Care
- Disease management
 - Reduced admissions & EC visits
- Population Health Analytics
 - The ability to measure and manage



Epic Business Impact On HCHD's Case Mix Adjusted Length Of Stay



Epic: Projected Economic Benefit

Clinical and Business Program Cost Estimate

- \$72 Million

Estimated Economic Benefit (5 Yr. Est.)

- Increase Net Patient Revenue : \$310 Million (+36%)
- Meaningful use: \$19.0
- Grant: \$600k (ARRA Homeless EMR)

Current 5 Year Estimated ROI

- \$329.6 Million (FY-10 thru FY-15)

PATIENT IDENTIFICATION

Patient Name Statistics

Total Person within Master Patient Index: 3,428,925

Same Last, First Name shared by 2 or more people: 249,213

Same Last, First Name shared by 5 or more people: 76,354

Same Last, First, Birth Date shared by 2 or more: 69,807

Same Last, First share by 500 or more people: 43,018

Patients named Maria Garcia: 2,488

- # Sharing the same birth date: 231

Biometrics Driver

Patient Safety

Fraud & Abuse

Reduce The Risk of Identity Theft

Reduce Duplicate Medical Records

Improve Patient Experience

- Accelerate Registrations / Check-in
- Decreases Patient Wait Time

Biometric Scanner - Overview

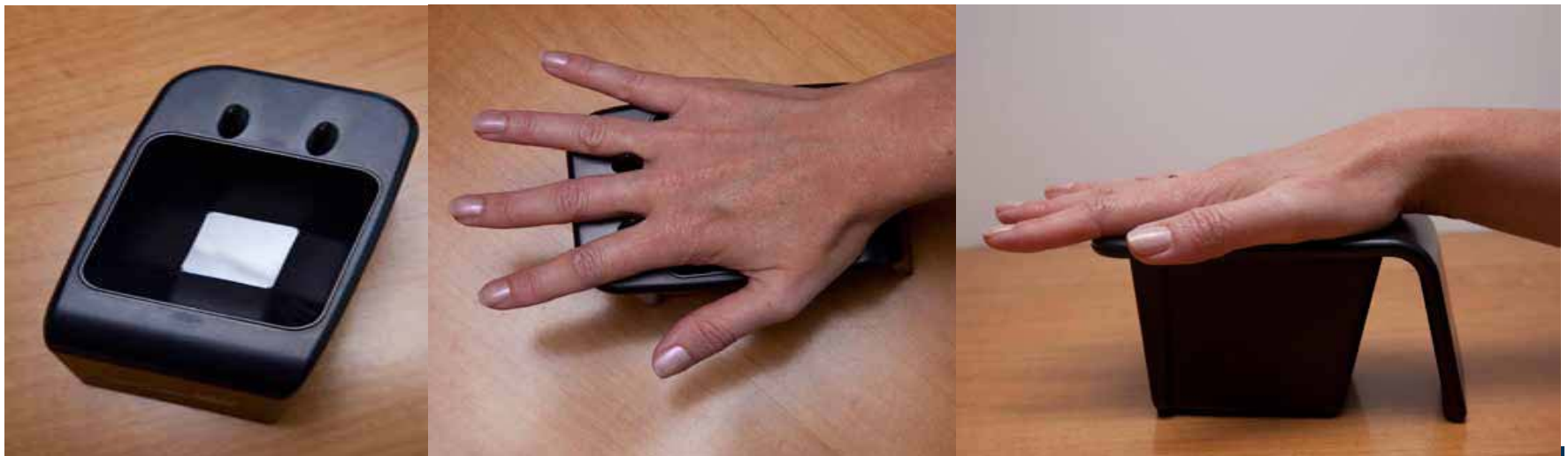
Vendor: HT Systems

Uses infrared light wave to scan patient's palm.

False acceptance rate is one in 1.25 million

Integrated into our systems and workflow

- Registration / Check-in / Procedure areas



Biometric Patient ID Statistics

New Patients Enrolled	
Total Unique Patients Enrolled	268,417
2012 Unique Patients Enrolled	137,789
2013 YTD Unique Patients Enrolled	25,719
2013 YTD Avg Enrolls/day	330
Patients Scanned and Matched	
Total Patient Matches	1,334,378
2012 Patient Matches	929,974
2013 YTD Patient Matches	229,003
2013 YTD Avg Patient Matches/day	2,935

Biometric Patient Identification: Critical Success Factors

Integration Into Systems / Workflow

Commitment To Patient Safety

- No Palm Scan, No Service

Facility Preparation

- Personnel Training & Support
- Patient Communication Materials

National Recognition

H&HN's 100 Most Wired Health Systems in USA

- Hospital (2011 & 2012)

HIMSS Analytics Stage 6 EHR Adoption

- Inpatient
- Ambulatory (2nd in the nation)

Today and Tomorrow's Challenges

Population Health

- Disease Management
- Predictive / Preventive Interventions
- Home Health Remote Monitoring

Accountable Care

- Coordinating / Outsourced Clinical Services
- Payer Model Implementation

Healthcare Reform

- 1115 Waiver DSRIP Projects
- ICD-10
- Meaningful Use Stage 2...

Today and Tomorrow's Challenges

Analytics

- Process Improvement
- KPIs for Business & Clinical Operations
- Specific analysis tools
 - Cost
 - Revenue
- Disease Management
- Predictive Modeling
- Benchmarking

DISCUSSION