Supporting Laboratory Outreach with Informatics

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Testing, Reimbursement and the Laboratory

The Drive to Laboratory Outreach

Phase 2

Integrating with Hospital Outreach

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Objectives

- Understand laboratory outreach and how it has been impacted by HITECH and the ACA government legislation

- Describe required workflow requirements for laboratory outreach

- Enumerate the information technology solutions that are available to support laboratory outreach

- Understand the impact of patient identity management and results distribution to outreach program success

What is Laboratory Outreach?

- Outpatient laboratory testing
  - Non-registered patients (non-patients)
  - Non-credentialed Practitioners (non-Docs)
  - For profit testing!
- Laboratory testing requires
  - Ordering provider
  - Patient with a valid MRN
- Outreach originated as a way for laboratories to increase income by leveraging excess capacity as a fee for service provider
  - Driven by changes in inpatient reimbursement, CLIA 88, increased automation

What is Laboratory Outreach?

- What customers use laboratory outreach?
  - Small doctor's practices
  - Non hospital aligned large physician practices
    - Driven by CLIA 88
    - Previously, such practices may have run their own laboratory
  - Non MD/DO practioners
    - Naturopaths
    - Nutritionists
    - Chiropractors
    - Dentist
    - Nursing homes

What is Laboratory Outreach

- Implications of HITECH, MU, ACO's and the growth of Hospital Outreach
  - With the implementation of HITECH hospitals are moving forward into more aggressive outreach under the auspices of Accountable Care Organizations
    - More work with unaligned physician practices
    - Heath Information Exchanges
  - This requires laboratory support services that are analogous to prior stand alone lab outreach programs
  - Economic pressures across healthcare further incentivize these effort

What is Laboratory Outreach

- Implications of HITECH, MU, ACO's and the growth of Hospital Outreach
  - Laboratory outreach programs now have a relationship to health systems efforts to bring in more work, create ACO's
    - Advantages
      - They get it!
        - » Increased support
    - Disadvantages
      - Increased complexity and coordination
      - Higher level scrutiny
      - Lab services are poorly understood!

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How is Outreach Accomplished?

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Hospital Based Outreach vs. National Laboratories

- Large national laboratory companies were early providers of laboratory services in the outreach environment
  - Some were reference laboratories that began to do more than esoteric testing
  - Some were established to do testing for non-aligned physician practices
- Hospital based laboratories with excess capacity and a vision to grow their market
  - Driven by changes in reimbursement for laboratory services
  - Consortiums supported by large reference labs such as Mayo

Hospital Based Outreach vs. National Laboratories

- Hospital labs had difficulty competing with large reference laboratories initially
  - Economy of scale; price per test
  - Test offerings
  - TAT's
- This has changed as the hospital based laboratory has been re-tooled and technology has improved efficiency
  - Customer loyalty and familiarity
  - Seamless service offerings
- Accountable care organizations and the goal to align providers regionally provide further incentive and value for hospital based laboratories

Historical Approaches to Outreach Workflow

- Paper based process
  - Paper requisition
  - Paper results: fax, courier
- Leverage existing LIS and HIS registration capabilities
- Outreach patients are registered at the site of presentation
  - "Mini reg"
- MD's credentialed on the fly or pre-credentialed as a part of contracting services
- Billing back to client or to patient insurance as contracted

Modern Approaches to Outreach

- Information Technology Enabled
  - Paper processes remain important to some clients, however most aspects of outreach can be supported by IT
  - Laboratory Portal
    - Order Entry
    - Requisition generation
    - Label generation
    - Shipping manifest
    - Results available electronically
  - Physician Office Connectivity Solutions

Modern Approaches to Outreach

- Information Technology Enabled
  - Sample tracking
  - Courier management and routing
  - Customer Relationship Management
    - Client management, knowledge base
    - Sales and marketing efforts
    - Issues tracking
  - Web site support
    - Laboratory users guide
    - Supplies
    - Newsletters etc.

Outreach at Henry Ford Health System

Henry Ford Medical Labs
"HFML"

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About Pathology and Laboratory Medicine
Henry Ford Health System

- HFH established 1915, by Henry Ford, who organized a closed staff of physicians and surgeons, many of whom came from Johns Hopkins
  - http://www.henryford.com/body_nologin.cfm?id=39484
- Laboratory grouped into divisions
  - Anatomic Pathology divisions
    - Cytology, Surgical Pathology, Autopsy
  - Clinical Pathology divisions
    - Blood bank, chemistry, microbiology, hematology etc
  - Molecular pathology
  - Informatics
  - Affiliated specialty labs: cytogenetics, bone and mineral Mohs Service etc
- 12+ million billable clinical laboratory tests and 200, 000 Anatomic Pathology Reports
  - 12th largest hospital based laboratory in the U.S.
- Operates as a single service line across
  - 4 hospitals
  - 36 medical centers
  - Single Integrated AP and CP LIS: Sunquest Clinical Lab and CoPathPlus

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HENRY FORD HEALTH SYSTEM
Pathology & Laboratory Medicine
Service Line of Integrated Labs
Hub & Spoke Delivery Model

12 million tests/yr
780 staff supporting
-*4 Acute care hospitals*
-*9 ERs*
-*30 Clinics*
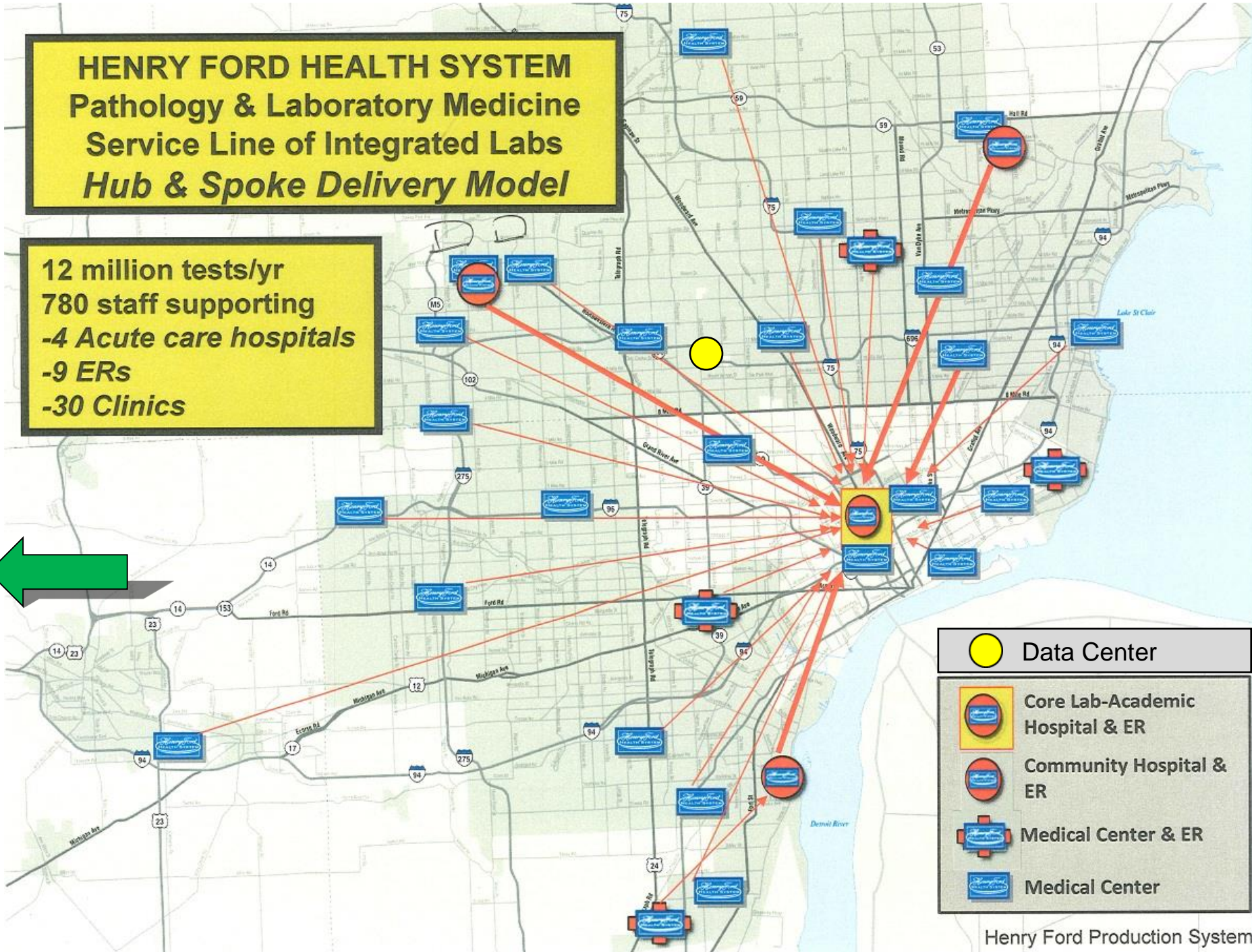
🟡	Data Center

🔴	**Core Lab-Academic Hospital & ER**
🔴	**Community Hospital & ER**
➕	**Medical Center & ER**
🔷	**Medical Center**

Henry Ford Production System

Outreach at HFHS

- HFHS is an integrated delivery network
  - MD's are employed
  - All outpatient visits are to HFHS operated clinics
  - Hospital lab is used at all HFHS sites
  - Little driver for outreach
- Some outreach activity had evolved outside the main laboratory prior to creation of the lab service line
  - Traditional approach using HIS registration and LIS
- Interest in consolidating and growing outreach was envisioned as a way attract new MD's and patients to HFHS services

Outreach at HFHS

- Consultants were engaged to do market analysis, provide direction on approach and IT services (2007)

- MD leadership was recruited to lead development of outreach program (2008)

- Atlas LabWorks was selected as an IT integration solution (2008)

- Sales and marketing staff were hired and clients recruited (2009)

- Manager hired (2010)

- Informatics team reorganized (2011)

- Continued annual growth meeting goals and expectations (2016) $0 to $millions/month
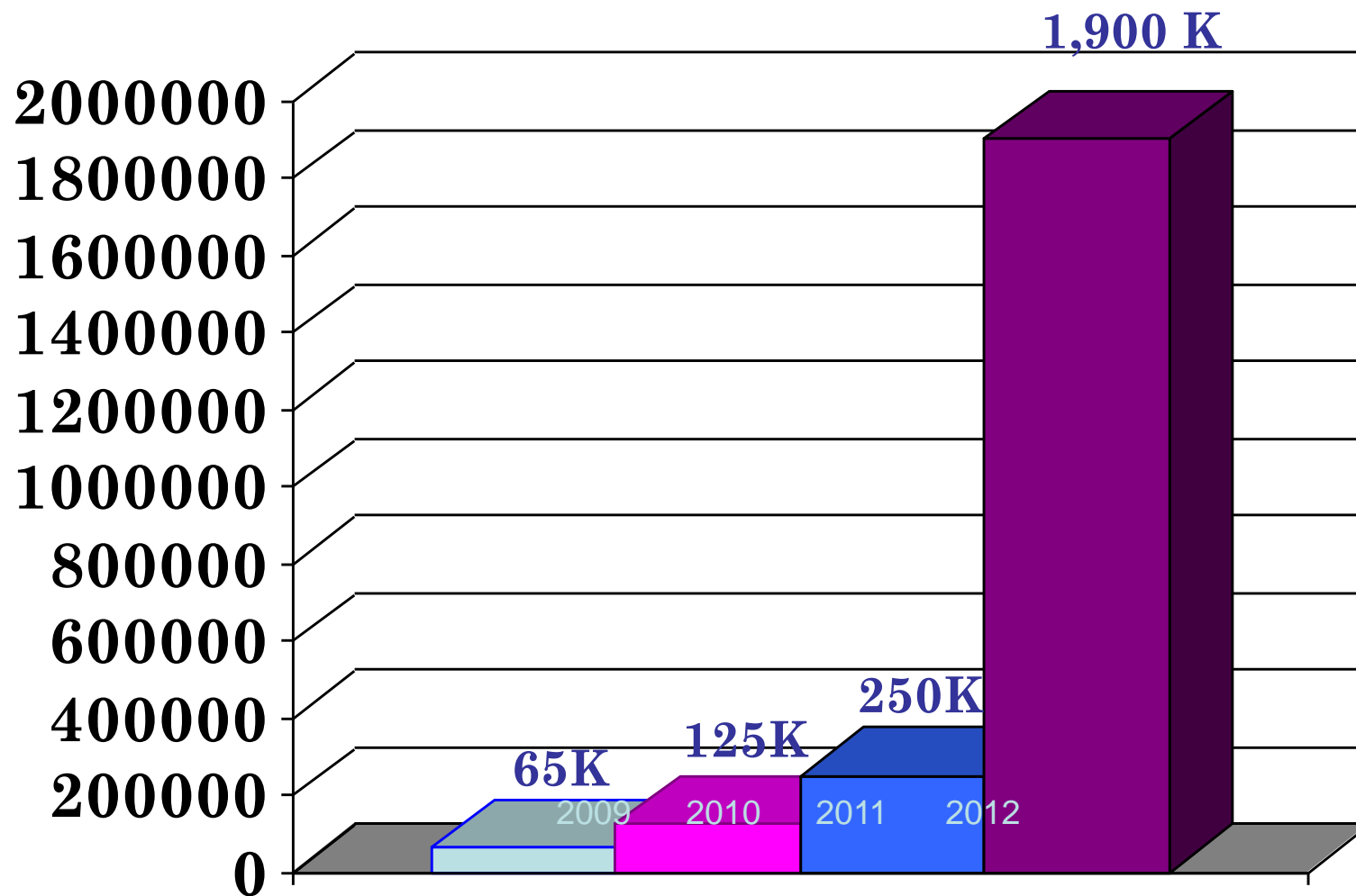
Key Components for IT Support of Outreach

- Core systems: LIS, ADT systems
- Lab portal integration with LIS, (Atlas LabWorks)
  - Orders, ABNs, requisitions, labels, e-results, printing
  - Billing and preauthorization
  - Courier management and routing
  - Office EMR interfaces
- Microcomputer support, networking
- Supply requests
- EMR Interfaces
- Customer relationship management tools

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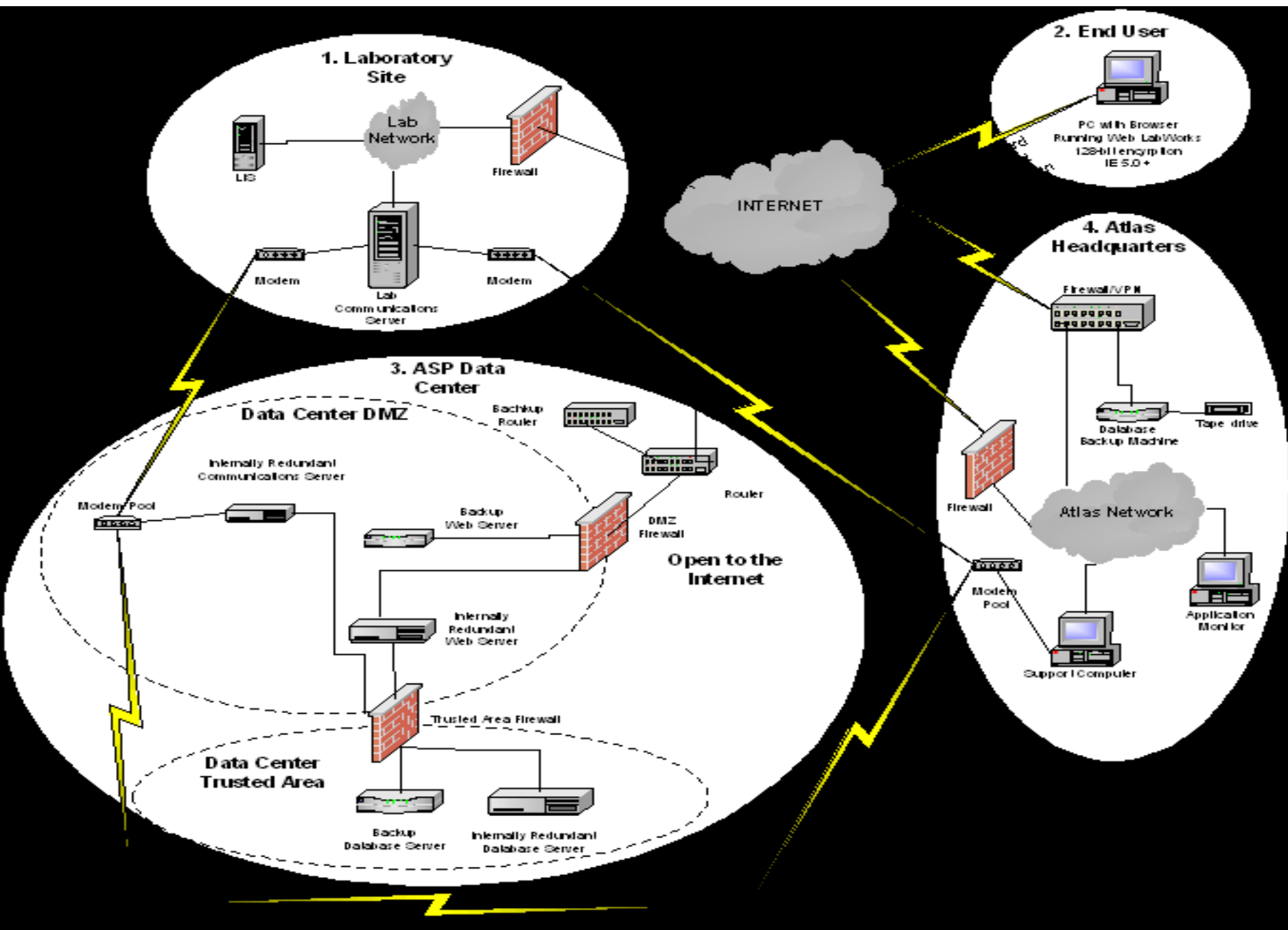
Outreach in the Age of HITECH

New Beginnings

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Outreach at HFHS
2012

- Due to lack of recognition of the importance of laboratory outreach to the health system at the enterprise level our design was effectively "stand alone"
  - Outreach testing was integrated into our Sunquest LIS as a separate HID:
    - The health system MRN could not be used
    - Results from outreach testing did not cross to our EMR despite pleas from the lab
      - Physicians were frustrated during transitions of care from outreach to inpatient services

Outreach at HFHS
2012

- Due to lack of recognition of the importance of laboratory outreach to the health system at the enterprise level our design was effectively "stand alone"
  - Service offerings were frustrated as lab outreach and hospital outreach were disintegrated
    - Sales and growth implications
  - Much effort was devoted to helping system leadership understand the complexities necessary to success of laboratory outreach programs

Outreach at HFHS
Enter Epic

- HFHS began an effort to stand Epic based on leadership decisions in 2011
  - By 2012 the first waves of inpatient and outpatient deployment were underway
  - Completed in 2014
- HFHS had begun an initiative to create an ACO through what is called Henry Ford Physician network (HFPN)

HFHS Accountable Care Organization (ACO) Henry Ford Physician network (HFPN)

- Laboratory was requested to provide lab services to these clients, many whom were, and some of whom were NOT laboratory outreach customers
  - Friction
- Leadership "visioned" that that HFPN customers would all use Epic through services referred to **"Community Connect"** as the method of supported the ACO
    - Epic hyperspace
    - Epicare Link (web portal)
    - This included lab services

HFHS Accountable Care Organization (ACO) Henry Ford Physician network (HFPN)

- As laboratory outreach was based on a solid set of tools and had been highly successful with customers it was key to determine how to integrate HFML services with HFPN
  - Orders, ADT
  - Billing and insurance preauthorization
  - Results
  - Office deployment
    - Microcomputer support including network
    - Phlebotomy, courier etc

Integrating Laboratory Outreach

HFML, HFPN, Atlas, Sunquest and Epic

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Integrating Laboratory Outreach

- Information Technology Redesign
  - It was recognized the integration of information technology would be key to our success
    - Lab had long recognized this challenge
    - This was an opportunity to:
      - Improve services of existing clients
      - Expand our client pool through new service offerings
      - Standardize on a widely adopted EMR solution by leveraging Epic
        - » However we knew this would not be a "palatable" solution for all customers

The Big Sell

- Laboratory had to help system executives and the our hospital outreach team understand what was required to be successful and why:
  - Why do you need a requisition on paper?
  - Why do you need a shipping manifest?
  - What is an instrument ready label and why do I care?
  - ETC.…

Outreach Environment

- Outreach services
  - non hospital outpatients
  - A spectrum of providers
    - Tightly aligned to very loosely aligned
- Laboratory Outreach drives hospital outreach
  - Drives hospital "inreach"; the goal
- Longitudinal Medical Record
  - Driving force for customers
  - Outreach, outpatient, inpatient data integration
    - This WAS the current problem
    - **<u>Lack of Atlas results from laboratory outreach in Epic</u>**
      - This issue is rectified by a new design

Outreach Environment

- Our Goal:
  - Workable solution to create a flexible, supportable way to provide world class laboratory services throughout our HFHS brand including the HFPN and HFML customers
- We proposed to:
  - transition all patient identification to use our HFHS EPIC MRN as the primary identifying MRN **for all laboratory services for all customers**
  - Support Epic EMR ordering through an Epic-Atlas-Sunquest Interface

Epic Enabled Laboratory Services for HFPN

- Will require similar service offerings to what through HFML
- Tremendous growth opportunity for HFHS
  - Needs to been done correctly, safely, efficiently
- Gaps in service offerings will negatively impact customer recruitment and retention
- Epic and Sunquest alone will not adequately meet service requirement and will create significant patient safety risks and operational inefficiencies

Resource Requirements and Effort

Process	EPIC + Sunquest	EPIC + Atlas + Sunquest
Provider set up	YES	YES
Provider updates	YES	YES
Demographics Interface	YES	YES
Orders Interface	YES	YES
Electronic Results Reporting	YES	YES
Paper Results Reporting	NO	YES
Instrument Ready Label Generation in office	NO	YES
Specimen Requirements on Label in office	NO	YES
Transport Manifest	NO	YES
HFML billing: non-hospital Outpatient	NO	YES
Client customized Billing	NO	YES
Order queue for accession check	NO	YES
Support of customers using no EMR in office	NO	YES
Integration with 3rd party office EMR	NO	YES
Physician office LIS integration	NO	YES
Support for Current Laboratoy Outreach Customers?	NO	YES

-Low Cost
-Little Effort
-High Risk of Failure
-A billing extract would need to be created
-Solution doesn't meet all types of customers

Detail with Clients
Detail Summary

-$100K Capital
-3-6 months effort
-Human Resources
-High degree of success
-Scalable, flexible solution that address all types of customers

NO
NO
NO
NO
NO
NO
NO
NO
NO
NO
NO

Dr. Office Dissatisfied

Patient Dissatisfied

Patient Safety Risk
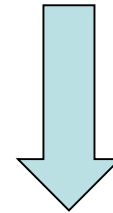
Business Loss

Proposed Integration Solution

Solution

- In order to fill these gaps we propose to leverage our existing Sunquest LIS and Epic, by integrating Atlas Labworks into all outreach environments
  - Atlas works as a silent middleware providing the required additional functionality
    - Most customers would be unaware that the application was even involved; nothing "installed"; "no Atlas icon"
    - Some customers might choose to use Atlas to their personal advantage; "give them the Atlas icon" (hyperlink)
- All outreach patients would utilize the Epic MRN as their primary identifier
- All results from the outreach arena would populate the EMR
- Community Connect, HFPN members would receive a high level of laboratory services as justified by the business model for a given practice

Solution

- Work necessary to accomplish this vision
    - A new orders interface from Epic to Atlas
    - A split of the current ADT interface to Atlas
    - A conversion of the current Atlas Patient Centric Repository (Master Patient Index) to utitize the Epic MRN as the primary identifier
    - Opening the pipeline to allow laboratory results to flow from outreach environment into Epic

Solution

- Epic, Atlas and Sunquest are commonly integrated nationwide to provide outreach services
  - These vendors are highly experienced with each other as well as this type of work effort
  - They are "known commodities"
- Such a project can be accomplished in as little as 3 months from commencement of a build

HENRY FORD HEALTH SYSTEM

ATLAS DATA CENTER

Interface Engine

ATLAS Gateway Server

ATLAS OuterWare®

AP Module

LabWorks®

iON Control

Acquire/Link Patient

Patient-centric Repository

Acquire/Link Patient

PSC Module

Customer Service Module

Epic HIS

MANUALLY REGISTER PATIENT EXCEPTIONS

NEW PATIENTS AND UPDATES TO EXISTING PATIENTS

Sunquest LIS

Multi-site EMR Interface

Sunquest CoPath

Lab User

MANUALLY UPDATE SPECIMEN ORDERS WITH REQUIRED FIELDS

Portal User

Print Reqs, Labels, ABNs

Atlas Connect

Other EMRs

AP

Auto-print Reqs, Labels, and/or ABNs

PSC User

Print Reqs, Labels, ABNs

AP

Auto-print Reqs, Labels, and/or ABNs

HFPN Community Connect Epic EMR

INTERFACE LEGEND
Blue = Orders
Green = Results
Red = ADT

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ATLAS MEDICAL
A division of Atlas Development Corporation

Epic-Atlas-SQ Interface

- Implement ADT interface between Epic and Atlas
  - Lab initially had to register about 200 patient a week, mainly from practices in the Macomb region; down 50% from activation day
    - Currently Over 95% of patients having already been registered when materials arrive in laboratory
    - Some lab based registration is still done
      - New approaches exist to improve this
- Transmit all results from Sunquest back to Epic
  - This was a significant milestone for the system addressing a myriad of complaints from physicians and patients
    - HFPN and HFML Physicians with Epic access have been transitioned to in-basket results saving paper and other costs
    - Prospective customers have been anticipating this effort see the value of HFHS services due to our integrated EMR that allows them to see inpatient, outpatient, outreach activities

Epic-Atlas-SQ Interface

- Implement Orders interface between Epic and Atlas
    - This was complex
        - Order number HL7 positioning
        - Accession number field length exceeding 12 characters
        - Auto-combining logic
    - Accomplishments
        - Orders Interface communication complete
        - Order codes, specimen types tested to date map correctly
        - Ask at order entry questions mapping
        - **Informatics team trained to order in Epic and running end to end testing**
        - Desired assets are being produce: labels, requisitions, manifests

Customer Relationship Management Software

"CRM"

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What is CRM?

- Software that manages customers
  - Experiences
  - Complaints
  - Supplies
- A knowledge base of clients
  - Technical setup
  - Preferences
  - Contact information
- Sales and marketing lifecycle

CRM Features

Drivers

- **Adopting ISO 15189 Medical Laboratory Accreditation**:
  - In the ISO-Quality management system, customer focus is defined as top management responsibility and requires:
  - Customer Communication
  - Customer Satisfaction
  - Deviation Management

Technical Design

- Microsoft Dynamic CRM 3.0 (3.0.5300.0) purchased through Sunquest Information Systems, Tucson, AZ
  - We modified the design of CRM based on HFML needs and workflows
- Current workflow and issues and problems were analyzed by direct observation and parallel testing to allow for effective design
- Involved lab users by providing opportunities for decision making, key requirements, daily problems, and preferred work flows for incorporation into our final design
- Implemented as a standalone solution

Outcomes

- Increased employee satisfaction
- Happier customers
- Same-Day customer response
- Better management insight
  - Powerful analytic capabilities
  - Real time CRM dashboard
  - Offering quality improvement trends by subject, volume, timeframe and other metrics to our customers
- Providing centralized data access
- Reducing paper, printing, and storage cost

Active Incidents Grouped by CallType

Received By	Call Status	Customer ID (Top 5)	Priority	Call Type	Category	Tracker	Call Source

Call ID	Status	Asgmts	Cust ID	Pty	Call Type	Category	Tracker	Received
Change Request - 2								
00000027	Suspended	0	GHermosura	4	Change Request	Change Management	Chris	2006-05-18
00000058	Open	0	CTURKEY	5	Change Request	Change Management	Renee	2006-08-10
Communications - 2								

Recent Developments

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Recent Developments and Future Plans

- "MUAR"
  - HL7 2.5.1 results interface deployed
    - Required for MU
  - Direct interface from interface engine to Atlas through one results interface, (HID 10 Filtered)
- All results to Atlas
  - Both outreach originating (HID 8) and IPD and OPD (HID 10) results now post to Atlas as well
    - "All results everywhere"
- *CRM integration
- *Courier management

Summation

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Summary

- Laboratory is currently highly successful in the outreach environment and supports HFPN
  - Information technology available to HFPN using Epic, Atlas and Sunquest LIS eliminates gaps, unsafe practices
- Current standardized technology was leveraged
- Office EMR deployment is extremely rapid using Epic
- Standardized patient identification for outreach activities to the HFHS (Epic) MRN has allowed all laboratory services for all customers to flow to HFHS EMR providing a longitudinal medical record as well as back to Atlas
- A **TRUE** longitudinal record for all patient environments continue to drive business growth to new levels

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Time for Questions???

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