



# Enabling New Healthcare Delivery Models with Standards-Based Integration

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## What is driving the need for new service delivery models?

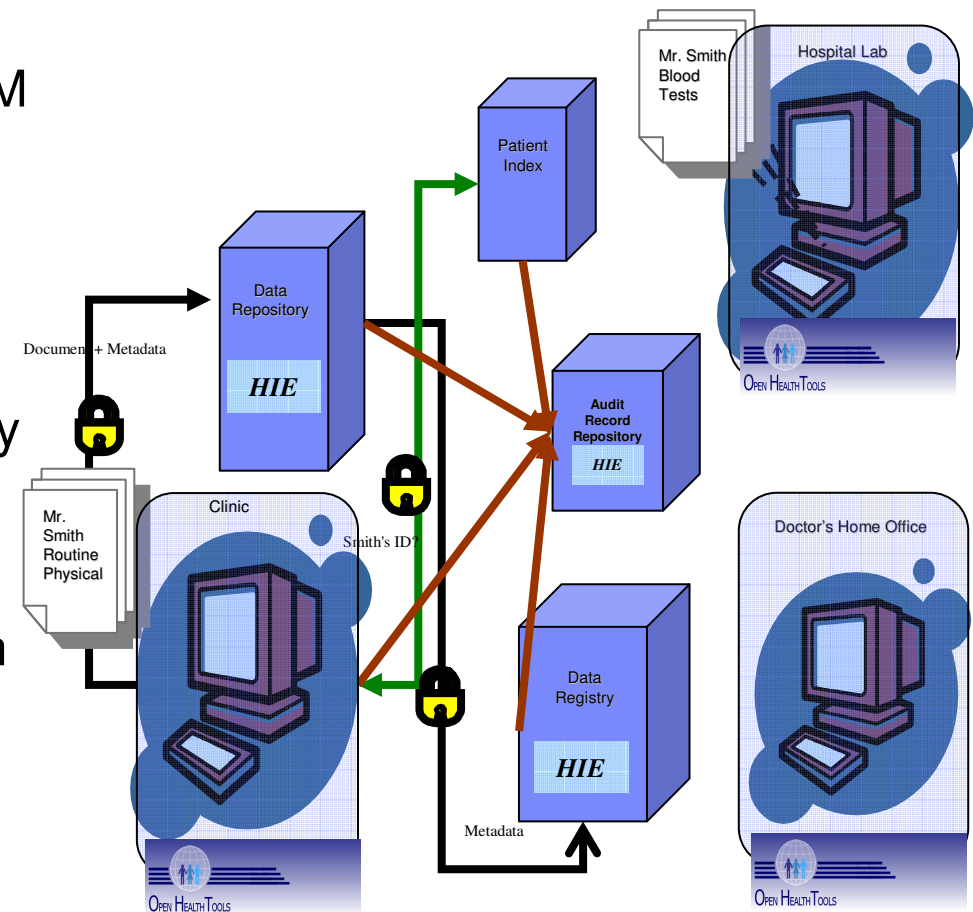
- Growing expectations for value from increasingly costly healthcare systems
- Broad awareness of how the secure exchange of patient and financial information among healthcare organizations and key stakeholders can make healthcare more efficient and effective
- The growing value of patient-centered collaboration and coordination across care settings to improve care quality and focus on prevention
- The growing incidence and cost of treating chronic disease, and re-emerging infectious diseases – calling for a proactive approach to public health disease monitoring and bio-surveillance

## Outline

- Implementation of an IHE based Health Information Exchange
- Pilot Implementations
  - US Nationwide Health Information Network
  - Middle East Consortium for Infectious Disease Surveillance
  - Guang Dong Hospital of Traditional Chinese Medicine
- New Healthcare Delivery Models Enabled by HIE

## IBM's Healthcare Information Exchange (HIE) Solution

- The IHE Infrastructure implemented over robust, scalable, well tested IBM middleware (DB2, WAS) and hardware.
- XDS Document Registry, XDS Document Repository, ATNA Audit Repository (client side complementary technology a part of Open Health Tools IHE Profiles Project)
- HIE is a component of the IBM Health Information Framework (HIF) and combines IBM Foundation products and Healthcare accelerators (interfaces and adaptors) into one, cohesive, solution.



## IHE Infrastructure Profiles: XDS, PIX, PDQ, ATNA

- **Cross-Enterprise Document Sharing (XDS)**
  - ebXML Registry Standard v2.1, v3.0 + SOAP
  - ebXML Registry Standards v3.0 + WS (and MTOM)
- **Patient Identifier Cross-Referencing (PIX)**
  - HL7 v2.3.1 over MLLP
- **Patient Demographic Query (PDQ)**
  - HL7 v2.3.1 over MLLP
- **Audit Trail and Node Authentication (ATNA)**
  - X.509, TLS, DICOM supplement 95 (Audit message format), UDP



## What is Open Health Tools

- **Open Health Tools (OHT) is a new *healthcare-centric* open community, started in 2007 dedicated to the design and development of open standards-based healthcare information technology**
- **OHT collaborative global membership**
  - National providers and consumers
  - International standards organization
  - Vendors
  - Research and academic
- **Operational projects driven by large national organizations and vendors to implement standards iteratively**
- **Self Sustaining ecosystem and competency centers**

[www.openhealthtools.org](http://www.openhealthtools.org)

## Who is Participating in OHT Today?



Connecting for Health



Canada Health Inforoute  
Santé du Canada



nehta

IHTSDO



ORACLE



COLLABNET



NEXJ  
SYSTEMS



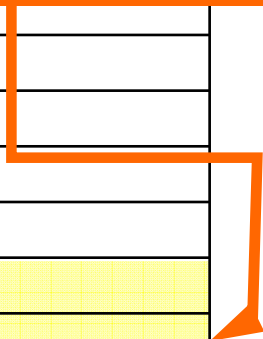
Cambio<sup>+</sup>  
Healthcare  
Systems

INNOOPRACT

# What Kind of Projects are in OHT Today?

<b>Technology</b>	
HL7 Tooling	NHS
Terminology & Clinical Content	IHTSDO & NeHTA & NHS
Conformance	Canada Health Infoway
Platform	OHT, NexJ, Ocean
User Interface (CUI)	NHS, QNX, NexJ, Oracle, IBM
Platform Architecture	NCI, HL7, NHS, NeHTA
Device Integration	IBM
Modeling	IBM, VHA
IHE Profiles	IBM
Legacy Integration	Open
Academic / Research	Oracle NCI
Data Tools, Data Transformations	Open
Security	Inpriva, HL7, IBM
<b>Exemplary Applications</b>	
Application	Technology Driver
Extensible Medical Record	CUI
Interoperable data	Platform

**IBM Lead Projects**



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# U.S. National Healthcare Information Network



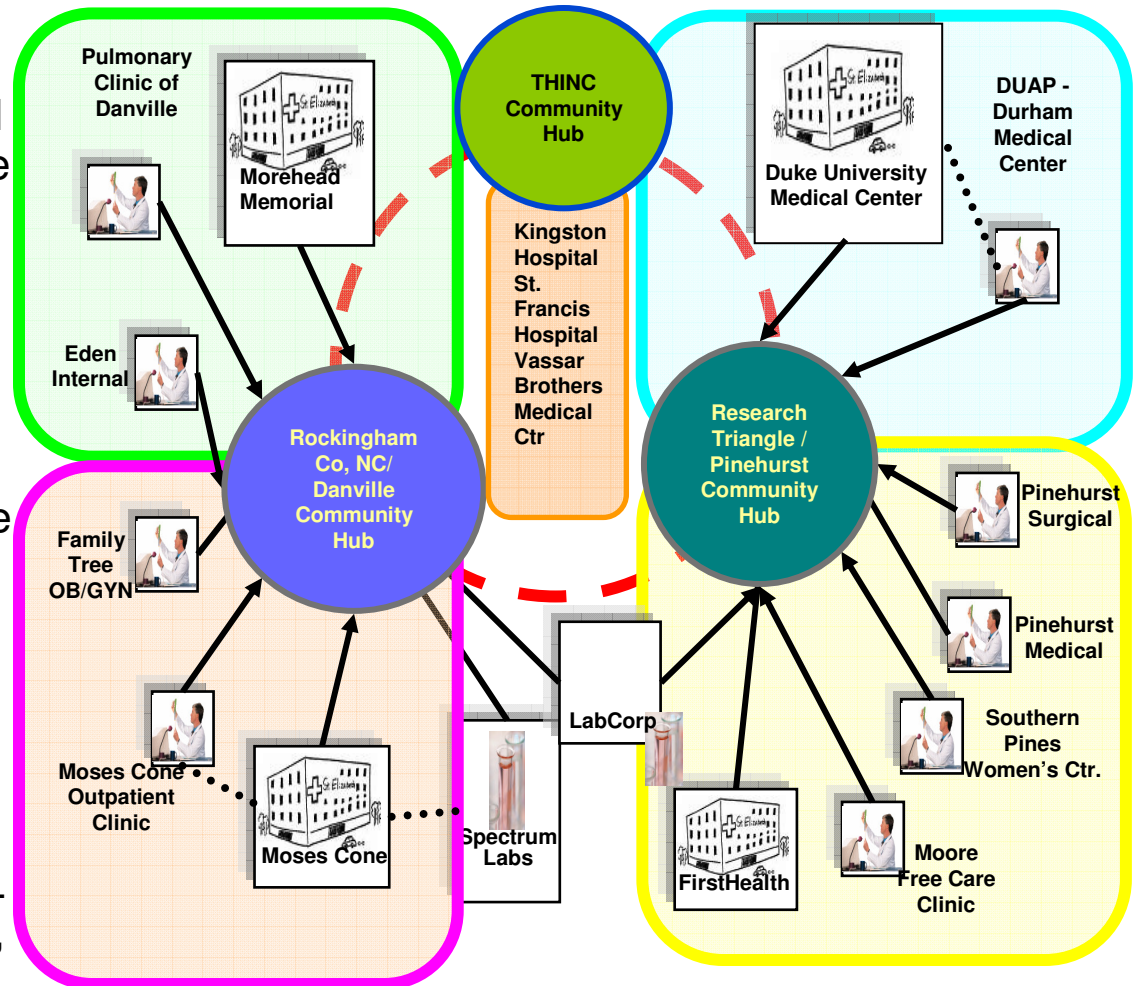
Department of Health & Human Services  
Office of the National Coordinator for  
Health Information Technology

**Business Problem:** The U.S. Government is committed to reducing HC cost through the use of IT. Goal is to provide longitudinal electronic health records to improve quality of care, reduce costs and support public health issues such as bio-surveillance and health epidemics

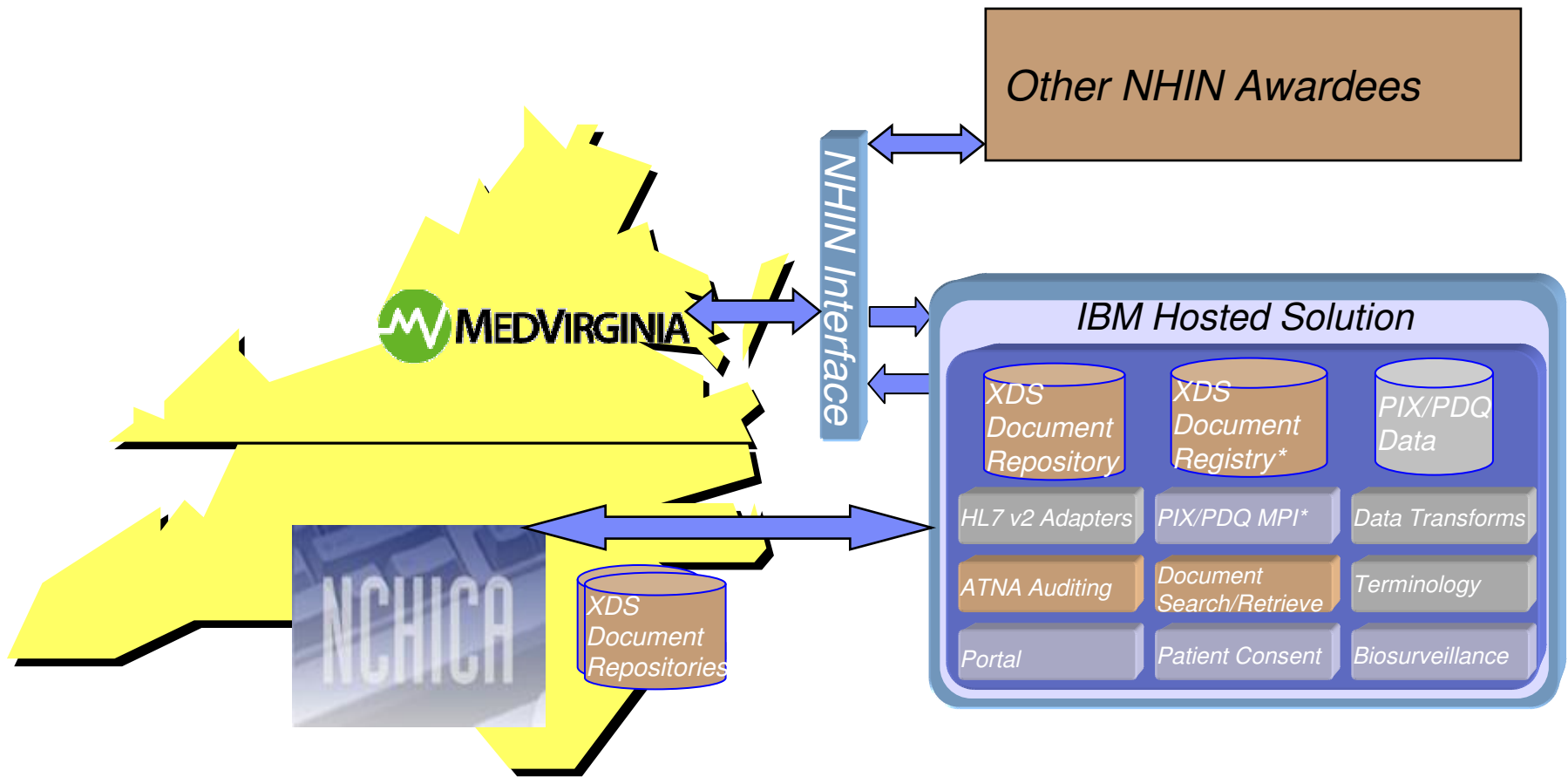
**Business Value:** Complete information for point of care, eliminate duplication of labs, reduce medical errors

**Solution:** Secure interoperable national healthcare exchange

**Healthcare Standards Used:** IHE PIX/PDQ, ATNA, XDS, XDS-I, HL7 v2/v3, Eclipse OHF, Security Std: SAML, WS-Security, TLS/SSL, XML dSIG, XAdES, XMLenc, WS-Policy, WS-Trust

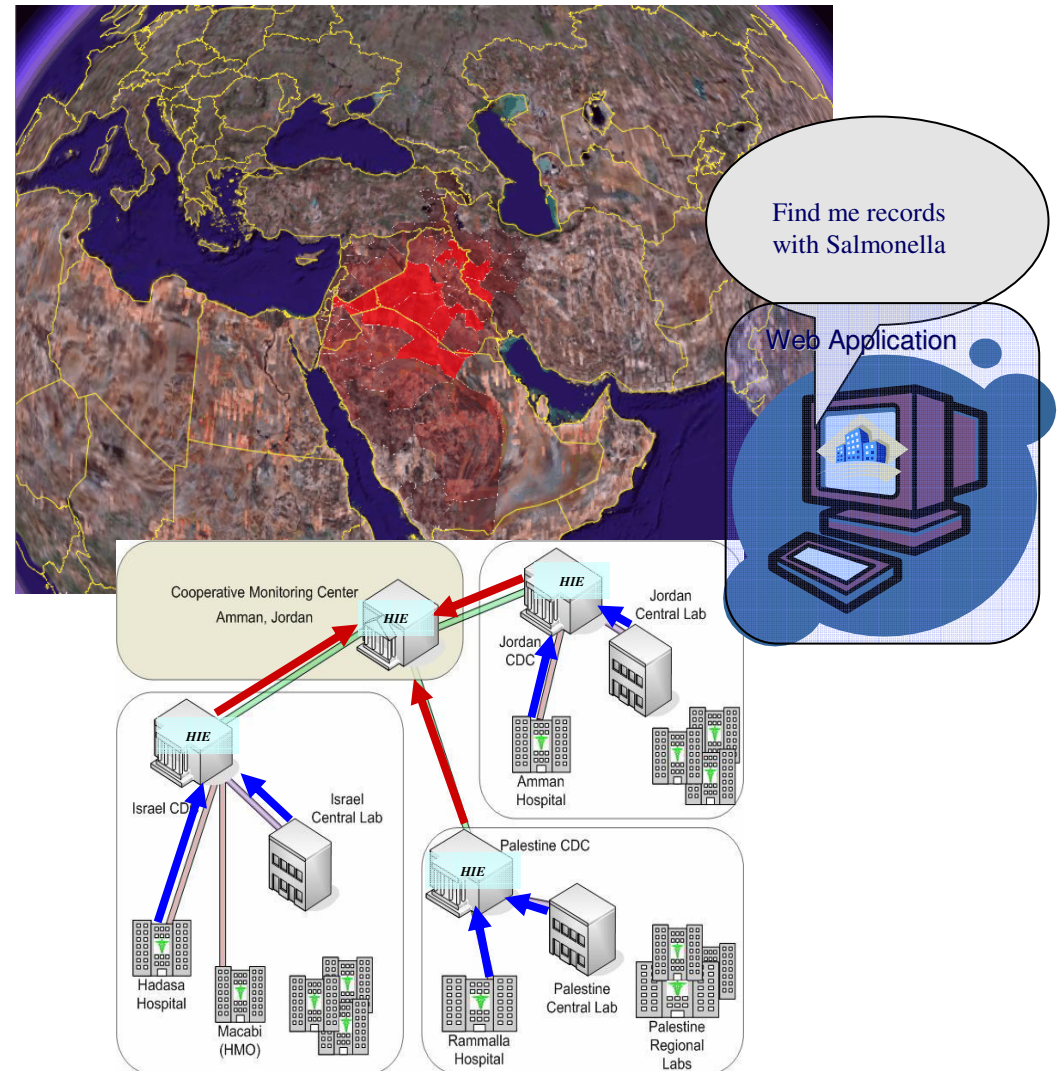


# US NHIN Trial Implementation Architecture – Round 2



# MECIDS and Public Health Information Affinity Domain (PHIAD)

- MECIDS = Middle East Consortium for Infectious Disease Surveillance
  - Jordan, Palestine and Israel
  
- Establish national and international surveillance networks:
  - Monitor population health
  - Provide a common platform for communication, data sharing, and analysis
  - Collaborate
  
- Initial scope of food-borne diseases
  - Salmonella, Shigella
  - Extend to more diseases easily



## Managing Clinical and Health Records for Analytics and Sharing (mCHAS) Pilot : Guang Dong Hospital of Traditional Chinese Medicine

- **Guang Dong Hospital of Traditional Chinese Medicine (GDHTCM)**
  - Founded in 1933, the largest modern hospital enterprise in south China, with one central hospital and four branches
  - Leading as combined clinical, education and medical research institution in China
  - Modern Clinical and lab-test device plus Traditional Chinese Medication
  
- **Customer requirements**
  - Central-Branch EMR/EHR exchange and sharing
  - Reconstructing Patient Centric View from as-is billing-centric HIS system
  - Clinical Decision Support for quality assurance and hospital administration
  - Data analytic solution for clinical/medical research
  
- **Benefits**
  - Patient-Centric-View, Central-Branch EMR Sharing, Healthcare Analytics



- **over 2,000 beds for inpatient**
- **over 10,000 outpatients visit every day**
- **4 million outpatient-visit in a year around**
- **One central hospital, and four branches**

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## Patient-Centered Medical Home (PCMH) is an approach to deliver comprehensive care, coordinated by a physician-led care team

Personal Relationship with a Physician and Care Team

+

Proactive Focus on Health, Care Intervention and Chronic Disease Management

+

Technology, Services & Applications to Support the New Collaborative Care Model

### ▪ Brief history of the evolution of the PCMH:

- **1967:** American Academy of Pediatrics defined medical home concepts related to children with special needs
- **2000-present:** AAFP and ACP developed and extended the concept to include care for all patients with chronic illness and patient centeredness
- **2006-07:** AAFP, AAP, ACP and AOA develop a common definition of “patient-centered medical home” and link PCMH to reform of payment for physicians

### *Principles of PCMH*

- Patient Centric/Personal Physician
- Physician directed medical “team”
- Whole person orientation
- Care is coordinated and/or integrated
- Emphasis on quality and safety
- Enhanced access
- Appropriate reimbursement

❖ ***“The Patient-Centered Medical Home (PCMH) provides care that is “accessible, continuous, comprehensive and coordinated and delivered in the context of family and community.”<sup>1</sup>***

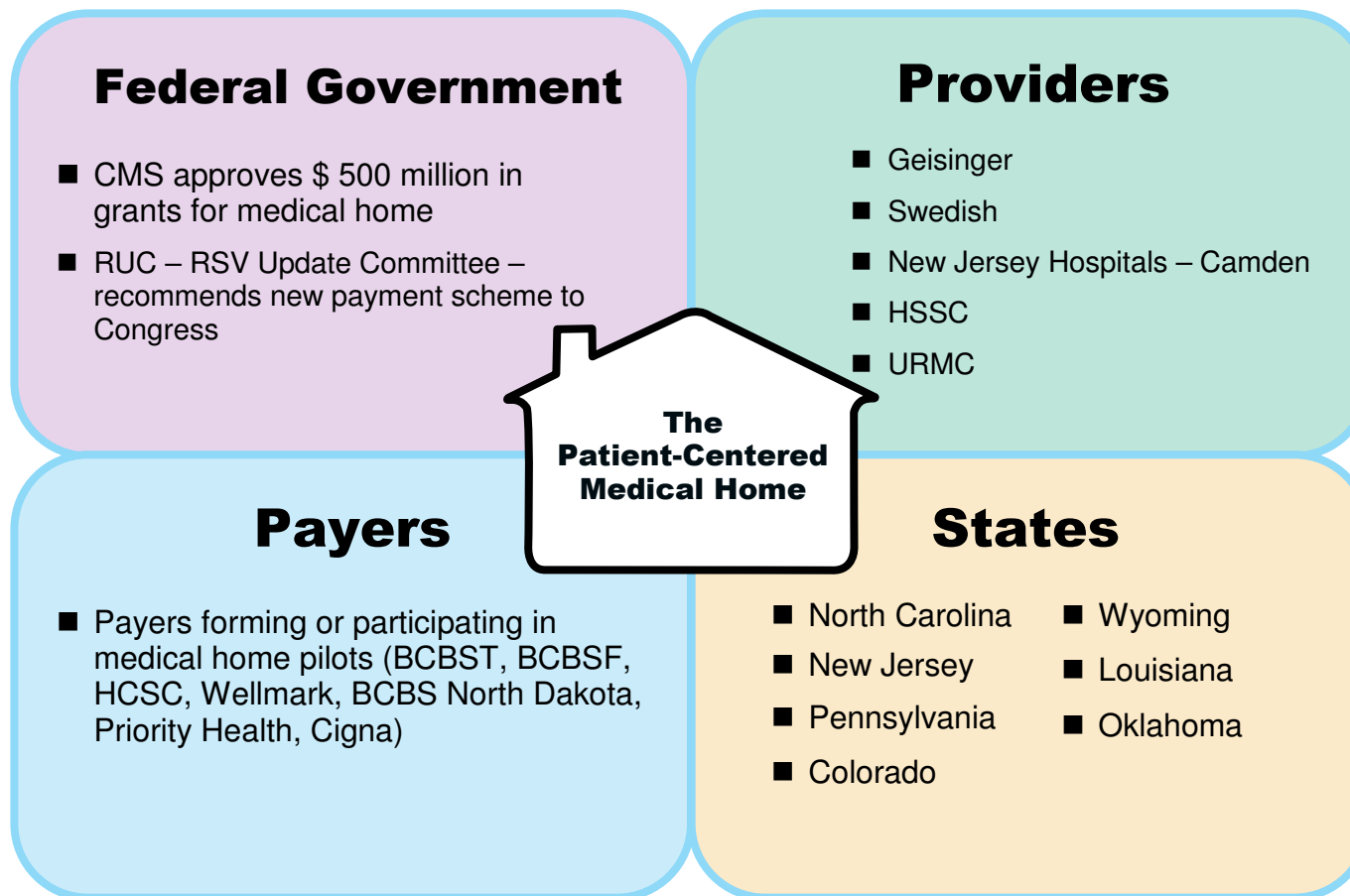


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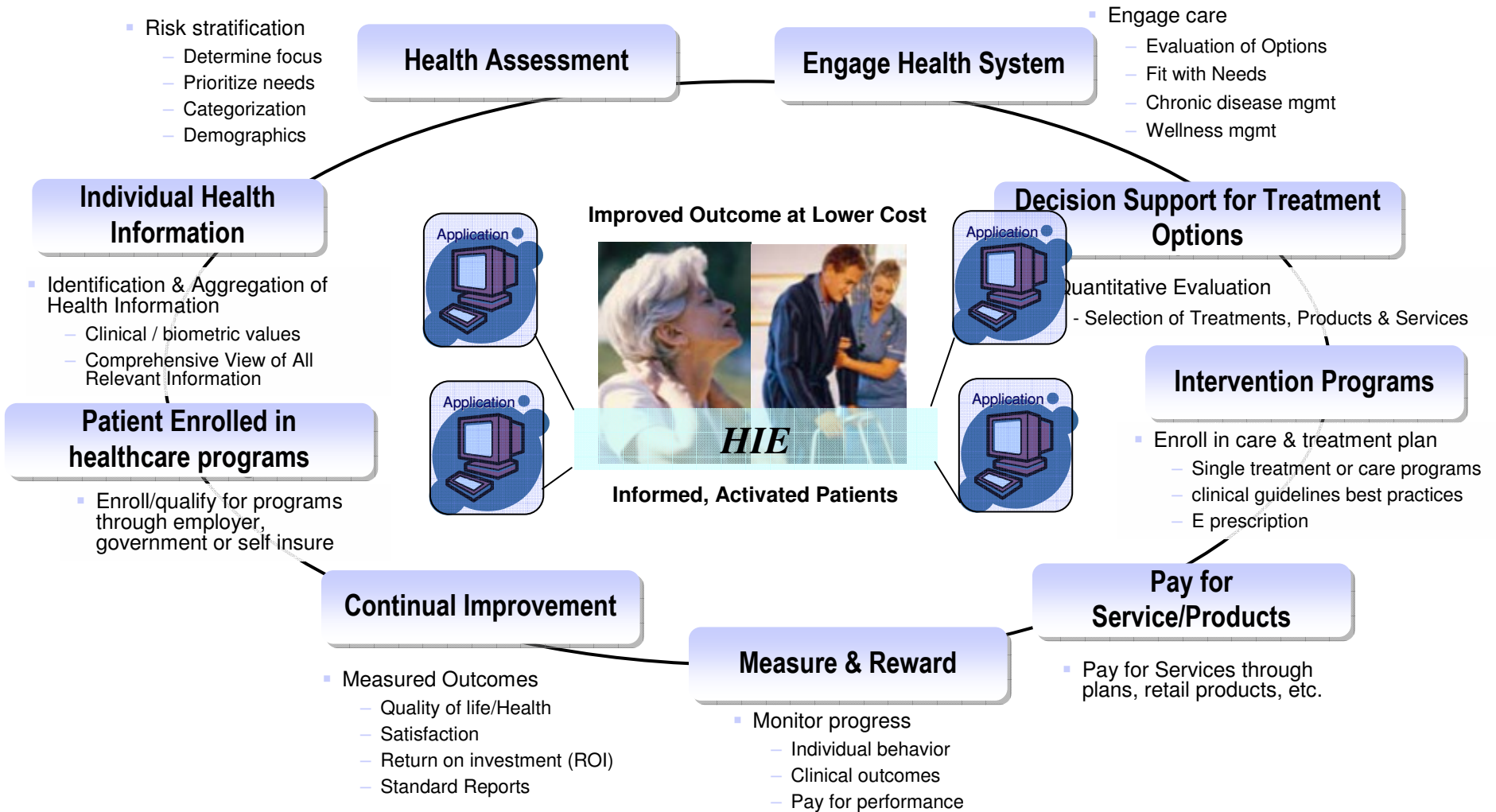


Source: 1) [www.medicalhomeinfo.org/join%20statementpdf](http://www.medicalhomeinfo.org/join%20statementpdf)

# The Medical Home is Gaining Traction in the US



# Patient Centered Medical Home Delivery Model





Thanks !