



# Welcome To Today's Webinar

**CAREfx**<sup>®</sup>  
Simply Advancing Healthcare

## *“Turn Your Physician Referral Process Into a Cash Flow Engine”*

*featuring*

***Marc Holland***  
*CEO and Managing Director  
System Research Services*



***Joel Vengco***  
*Executive Director,  
Clinical Information Systems  
Boston Medical Center*



# Agenda:

- **Welcome**
  - Marc Holland, CEO, System Research Services
- **Application and Workflow Integration: The Key to Achieving Meaningful Use**
  - Marc Holland, CEO, System Research Services
- **Building a Sustainable Referral Network: A Case Study of Boston Medical Center's e-Referral System**
  - Joel Vengco, Executive Director of Clinical Information Systems, BMC
- **Q&A**

# Healthcare IT:

## *2009 and Beyond*

- The increasing prevalence of EMRs and EHRs
- The influence of ARRA
- The rise of the virtual medical enterprise
  - Increased horizontal & vertical organizational integration
  - Tighter affiliations and partnerships
  - Workflow integration as a competitive advantage
  - IT as facilitator of this integration
  - The medical home
  - Episode of care-based reimbursement models
- Health information exchange – here to stay

# The Influence of ARRA

- Government incentives through Medicare and Medicaid
  - Up to \$16 million per hospital
  - Up to \$44,000 per physician
  - Comparable incentives for CHCs and other qualifying providers
- \$300 Million for health information exchange initiatives
- Federal matching grants to states
  - Health information exchange
  - HIT education
  - EMR training and support
  - ... and more

# The Influence of ARRA

- Government incentives through Medicare and Medicaid
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  - Comparable incentives for CHCs and other qualifying providers
- \$300 Million for health information exchange initiatives
- ***But to qualify, providers must:***
  - ***Implement a certified EMR or***
  - ***Obtain certification of an existing one***
  - ***Demonstrate “Meaningful Use”***
- ... and more

# Meaningful Use:

## *It's not just about installing EMRs*

- **Improve quality, safety, efficiency and reduce health disparities**
  1. Provide access to comprehensive patient health data for the patient's health care team
  2. Use evidence-based order sets and CPOE
  3. Apply clinical decision support at the point of care
  4. Generate lists of patients who need care and use them to reach out to patients (e.g., reminders, care instructions, etc.)
  5. Report to care registries for quality improvement, care reporting, etc.
- **Engage patients and families**
  1. Provide patients and families with timely access to data, knowledge and tools to make informed decisions and manage their health
- **Improve care coordination**
  1. Exchange meaningful healthcare information among professional healthcare team
- **Improve population and public health**
  1. Communicate with public health agencies
- **Ensure adequate privacy & security protections for personal health information**
  1. Ensure privacy and security protections for confidential information through operating policies, procedures and technologies and compliance with applicable law
  2. Provide transparency of data sharing to patient

# Meaningful Use:

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- **Ensure adequate privacy & security information**
  1. Ensure privacy and security protections for all data, including procedures and technologies and compliance with applicable law
  2. Provide transparency of data sharing to patient

**The ability to effectively and efficiently exchange health information electronically is a crucial component of each of these goals.**

# MU Criteria Relevant to HIE

*(selected, not all)*

## 2011

- Check insurance eligibility electronically from public and private payers, where possible
- Submit claims electronically to public and private payers
- **Capability to exchange key clinical information (e.g., discharge summary, procedures, problem list, medication list, allergies, test results) among providers of care and patient authorized entities electronically**
- Capability to submit electronic data to immunization registries and actual submission, where required and accepted

## 2013

- **Produce and share an electronic summary care record for every transition in care (place of service, consults, discharge)**
- Perform medication reconciliation at each transition of care from one health care setting to another

## 2015

- Access comprehensive patient data from all available sources

# The Maturation of HIEs:

*A concept whose time has (finally) come*

- The number of initiatives involved in health information exchange is growing.
  - HIMSS' now-defunct State HIE dashboard was tracking the status of more than 450 community-based HIE initiatives
  - SRS estimates that, nationwide, the number of proprietary HIE initiatives well exceeds 1,000
  - Proprietary HIEs not only outnumber community-based initiatives, but are maturing more rapidly
  - ARRA will place greater emphasis on state-sponsored exchanges, such as the ones in DE, ME and VT

# The Maturation of HIEs:

## *A concept whose time has (finally) come*

- The number of initiatives involved in health information exchange is growing.
  - Sixty-seven health information exchange initiatives responded to the eHI survey for the first time.
  - There are at least 193 active initiatives involved in health information exchange.
  - 150 initiatives responded to the survey.
  - eHI identified 43 additional initiatives from the 2008 survey which are still functioning, but did not complete this year's survey.

### *Source:*

*"Migrating Toward Meaningful Use: The State of Health Information Exchange" – eHealth Initiative's Sixth Annual Survey, July 2009 --- [www.ehealthinitiative.org](http://www.ehealthinitiative.org))*

# eHI 2008 - 2009 Survey Findings: *Functionality is Growing*

<b>Data Currently Exchanged</b>			
<small>*Source: eHealth Initiative's 2009 Survey of Health Information Exchange</small>	<b>2008</b>	<b>2009</b>	<b>Change (+/-)</b>
Laboratory	26	49	+23
Medication data (including outpatient prescriptions)	n/a	48	n/a
Outpatient laboratory results	25	45	+20
Outpatient episodes	23	43	+20
Radiology results	23	39	+16
Emergency Department episodes	27	36	+9
Inpatient diagnoses & procedures	27	35	+8
Care summaries	n/a	34	n/a
Inpatient discharge summaries	n/a	32	n/a
Pathology	18	32	+14
Dictation / transcription	20	31	+11
Cardiology	15	27	+12
Claims: pharmacy, medical, and/or hospital	n/a	27	n/a
Enrollment / eligibility	17	25	+8
Pulmonary	13	23	+10

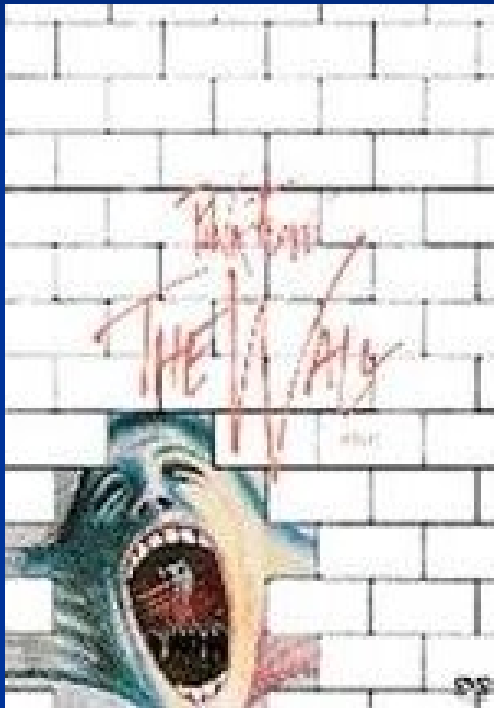
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# HIE: Future Outlook

- Active vs. passive data
  - Portals and clinical data repositories typically implement “passive” views of data
- Technical interoperability/data integration ... necessary but not sufficient
- HIE should be a process integration platform
  - SOA + legacy applications = composite applications

# HIE: Future Outlook

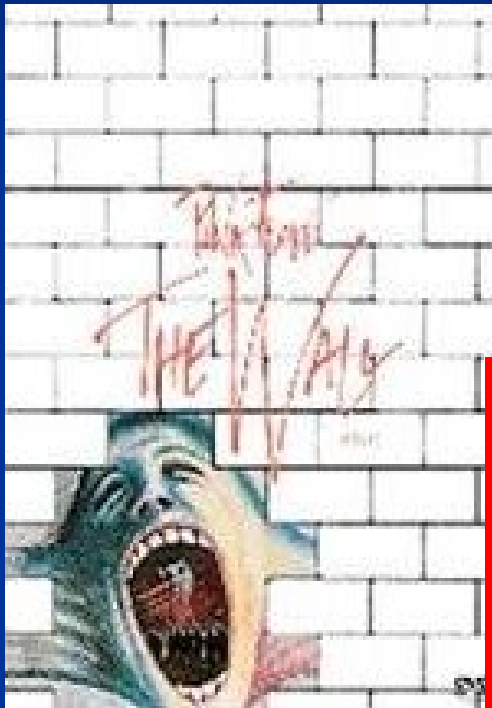


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## In the future --

- ***HIE functionality will be seen as just another component of a healthcare organization’s applications portfolio***
- ***The measure of an application’s value will be the degree to which it facilitates process and workflow integration***
- ***New applications become, “just another brick in the wall”***

# HIE: Future Outlook



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## **BMC's CIE and e-Referral System: *The intersection of these concepts***

*integration*

- *New applications become, “just another brick in the wall”*

# BMC's e-Referral System:

Joel Vengco, Executive Director of Clinical Information Systems



- Over 11 years of health IT and informatics experience
- Responsible for the enterprise systems and technologies that support BMC and its network partners
- Leads BMC's Community Information Exchange vision and development

# Building a Sustainable Referral Network: *A Case Study at Boston Medical Center*

**Joel Vengco, MS MA**  
Director, Information  
Technology & Systems



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# About Boston Medical Center



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- Private, not-for-profit, 626-licensed bed, academic medical center
- Primary teaching affiliate for Boston University School of Medicine
- Largest safety net hospital in New England
- Largest 24-hour Level I trauma center in New England
- ~1,200 Physicians
- ~700 Residents and Fellows
- 29,471 inpatient discharges
- 985,356 outpatient visits



# Boston Health Net: Integrated Delivery Network







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Partnership among:

- 15 Boston area Community Health Centers
- Boston Medical Center
- Boston University School of Medicine



-  Centricity
-  N/A
-  Epic
-  LMR



# Community of Care: Our Goal



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- Developing an Integration Platform for Interoperability:
  - Achieve one patient, one record
  - Enhance patient care and quality
  - Strengthen network collaboration
  - Demonstrate *Meaningful Use* of EMR
  - Drive Interoperability – the critical path

# Community of Care: Our Strategy



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- **Solution:**
  - Community Information Exchange (CIE)
- **Funding:**
  - 2 federal grants applied over 3 years \$1.3M
- **Build Principles:**
  - Standards compliance (IHE, HITSP)
  - EMR Agnostic
- **Membership:**
  - Exchange of information among trusted partners – our immediate Community
  - 13 participating health centers and 1 academic medical center
- **Vendors:**
  - GE Healthcare (Health Information exchange)
  - Carefx – Fusionfx (eReferral Portal)

# Community of Care: Our Approach to CIE Sustainment



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- Use the standard constructs of the Health Information Exchange as an “active” foundation for functional applications
- Identify critical business processes that require information exchange at its core
- Identify and build solutions that “**benefit**” stakeholders and “**build**” CIE stepwise

## Bottom Line:

**Develop HIE supported, transaction-based functions that address business problems...**

# A Known Challenge: Referral Management



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- *Primary care physicians (PCPs) who receive referral information provide optimum care in 96 percent of cases while those who receive no information deliver the best care only 35 percent of the time.*  
-- *Journal Pediatrics, 2008*
- *A physician survey at Partners Healthcare showed 68% of specialists reported that they received no information from the PCP prior to specific referral visits, and 38% of these said that this information would have been helpful. In addition, four weeks after specific referral visits, 25% of PCPs had still not received any information from specialists.*  
-- *Gandhi, T.K., et al. Communication Breakdown in the Outpatient Referral Process, J Gen Intern Med. September 2000. 15(9): 626–631.*
- *Referral completion, i.e., a written communication of referral results from the specialist, increased 3 folds for those pediatricians that scheduled the appointments and communicated with the specialist. Referring physician satisfaction increases by any type of feedback from the specialist and the inclusion of care plan in the written communication.*  
-- *Forrest, G.B., Coordination of Specialty Referrals and Physician Satisfaction With Referral Care. Arch Pediatr Adolesc Med. 2000; 154:499-506.*

# Boston Health Net: Referral Process Breakdown



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## A fallible and cumbersome process



# Boston Health Net: Addressing the Referral Challenge



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- Implement an eReferral system between BMC and the CHCs that:
  - Utilizes the Community Information Exchange platform
  - Integrates with physician's current workflow and improves their alignment with CHCs
  - Centralizes and optimizes the work of the referral coordinators
  - Enhances communication and information exchange between PCP and specialist
  - Tracks referrals through completion
  - Facilitates referral process

# The Referral/Information Exchange “Connection”



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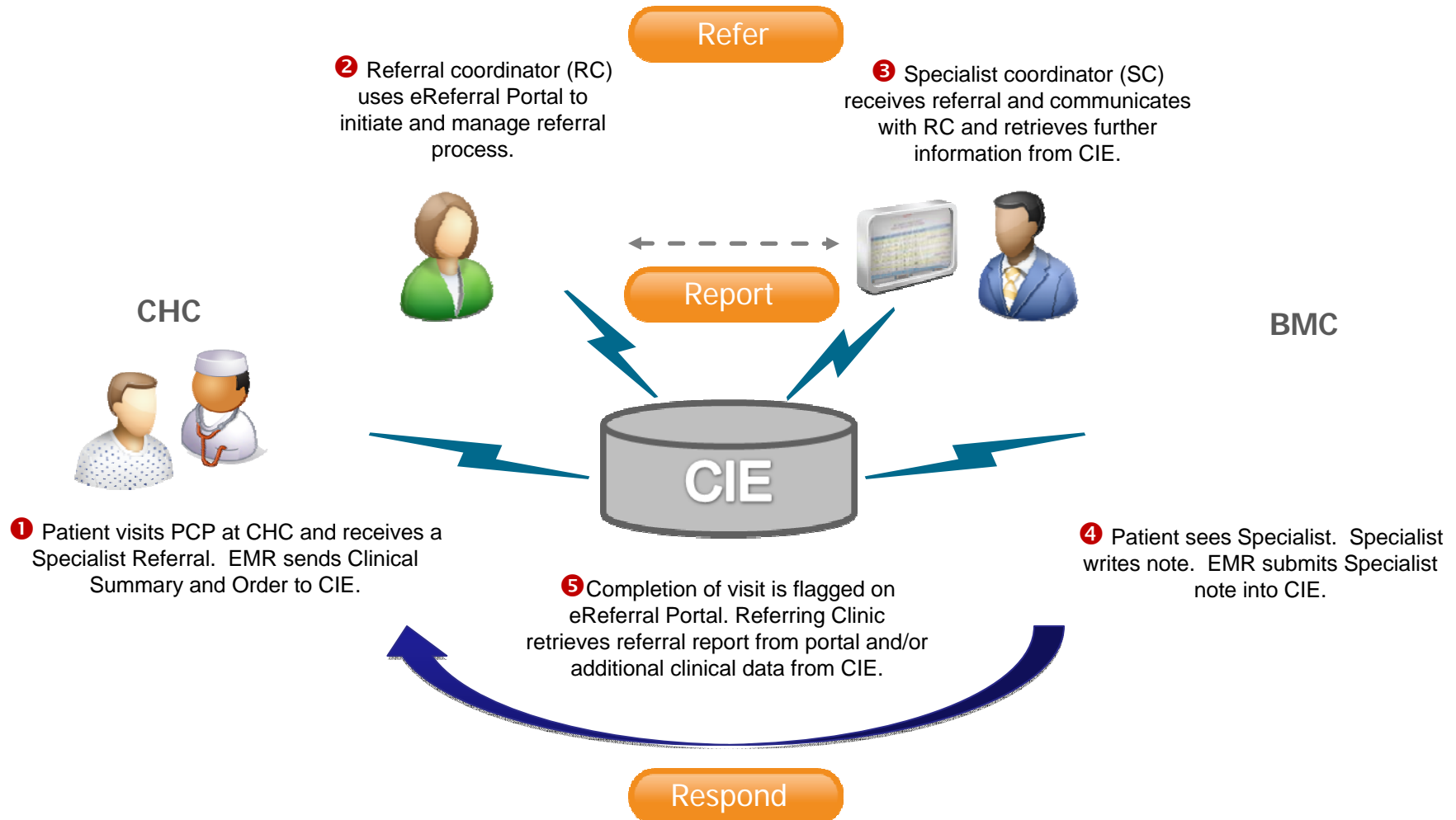
- *“Automation of the patient referral process, more often a disjointed and cumbersome workflow, is a critical capability of a clinical portal or HIE solution. It is of particular value when it leverages existing hospital, physician and payer systems and has strong tracking and reporting capabilities.”*

**Gartner**

- *Barry Runyon, Research Vice President, Gartner Healthcare Providers, August 2009*

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# Network Referral Cycle: Community Integration



# eReferral Portal: Coordinator Task List



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Log Out

Referral List | Referral Details | Referral Search

### Referral Demographics

**Holmes, Sheryl**      Age: 46Y      CHC MRN: 62438563 (Codman)      PCP: Holmes PCP  
 Gender: F      DOB: 03/22/1962      BMC MRN: Not Avail      Specialist: Dr. Who      Home Phone: (234)456-0432

### Referral List

All Referrals (4)      Appt within 3-7 days (0)      Clinic/Specialty: All My Clinics      Status to filter on: Display All  
 New Referrals (3)      No Show (0)      Status: Display All  
 Auth Not Obtained (3)      Visit took place within last two weeks (0)  
 Unscheduled (3)      Specialist report ready (0)  
 Appt Today (0)      Last Updated: 03/19/2009 11:49      [Update List](#)

Priority	Ref. Date	Name	MRN	Diagnosis	From	To	Ref Status	Auth.	Appt.	Appt. Date	Spec.	Spec. Note	SC Ack.	RC/SC Note
<input type="checkbox"/> Routine	01/08/2008	Holmes, Sheryl	62438563	Heart Murmur	Codman	Cardiology	Submitted	Obtained	Completed	03/27/2009 10:00 AM	Dr. Who	Incomplete	✓	
<input type="checkbox"/>	01/11/2008	Hart, Irma	86740365	Colonoscopy	Codman	Endoscopy	New	Not Obtained	Not Scheduled			Incomplete		
<input type="checkbox"/>	01/20/2008	Doe, John	62739464	Palpitations	Codman	Cardiology	New	Not Obtained	Not Scheduled			Incomplete		
<input type="checkbox"/>	02/05/2008	Johnston, Ellen	M65432	Colonoscopy	Codman	Endoscopy	New	Not Obtained	Not Scheduled			Incomplete		

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[Reject Referral](#)   [Add Note](#)   [Print Referral](#)   [Close Referral](#)



# eReferral Portal: A View Into the CIE



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### Referral Detail

Referral Status: **Submitted**  
 Authorization: **Obtained**  
 Appointment: **Completed**  
 Specialist Note: **Incomplete**

- [RC: Confirm Patient Eligibility](#)     [SC: Update Patient Appt Status](#)
- [RC: Enter Appointment Pref.](#)    [SC: Attach Specialist Note](#)
- [SC: Enter Appointment Data](#)    [RC: Print Referral Summary and Close Referral](#)
- [RC: Enter Auth Data](#)

Patient Referred To: BMC - Cardiology

[Reject Referral](#)    [Submit Referral](#)

**Summary** | Insurance Info | Referring | Specialist | Clinical Data

Preliminary Dx: Heart Murmur

Pertinent Medical History:

This is pertinent to this referral ...

#### Clinical Data Associated with the Current Referral

Document	Date Last Updated	Source Clinic
<input type="checkbox"/> Clinical Summary	03/04/2009 11:54	Codman

[Remove from Referral](#)

#### Available Clinical Data

Document	Date Last Updated	Source Clinic
<input type="checkbox"/> Clinical Summary <span style="color: green; font-weight: bold;">NEW</span> <span style="color: red; font-weight: bold;">Updated</span>	03/14/2009 06:31	Codman
<input type="checkbox"/> Clinical Summary <span style="color: yellow; font-weight: bold;">NEW</span>	03/12/2009 04:12	Dorchester
<input type="checkbox"/> Clinical Summary	02/07/2009 09:41	BMC

[Add to Referral](#)

Clinical Data Complete

[Save](#)



# eReferral Portal: Management Reports

report time span  
2009-01-01 to 2009-09-03

Boston Medical Center  
Snapshot By Referring Clinic

created on 2009-09-03 at 12:54  
for Todd Diehl Page 1 of 1

Referring Clinic	Total	Referral Status									Appointment Status								
		New		Submitted		Completed		Closed		Rejected		Sched/Conf		Completed		Cancelled		No Show	
		#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Internal	771	116	15 %	482	64 %	11	1 %	105	14 %	47	6 %	410	53 %	92	12 %	18	2 %	35	5 %
Boston Health Care for the Homeless	26	1	4 %	19	73 %			5	19 %	1	4 %	18	69 %	2	8 %			1	4 %
Codman Square Health Center	437	48	11 %	288	65 %	7	2 %	73	17 %	23	5 %	239	55 %	58	13 %	4	1 %	23	5 %
Dorchester House Multi-Service Center	42	6	14 %	33	79 %					3	7 %	30	71 %	3	7 %				
Greater Roslindale Medical and Dental	76	1	1 %	48	63 %	1	1 %	21	28 %	5	7 %	44	58 %	16	21 %	8	11 %	5	7 %
Harvard Street Neighborhood Health Center	16	4	25 %	10	62 %					2	12 %	7	44 %	2	12 %				
Mattapan Community Health Center	8			8	100 %							6	75 %	1	12 %	1	12 %		
South Boston Community Health Center	14	1	7 %	12	86 %					1	7 %	11	79 %			1	7 %		
South End Community Health Center	56	28	50 %	18	32 %					10	18 %	16	29 %	1	2 %			1	2 %

# eReferral Portal: System Architecture



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- Light footprint
- CIE as its main data store
- Utilizes HITSP and XDS standards for publishing and communicating with CIE
  - Publishes CCD into CIE as output of referral process
  - Consumes CIE web services to support portal functions
- Referral Application is plug & play with standard HIE builds

# eReferral Portal: Results in 3 months (preliminary)



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Improved Referral  
coordination

- tasks are complete, standardized, and trackable

Improved Referring Physician  
and Specialist satisfaction

- information availability!

Improved patient satisfaction

- timely appointments!

Improved scheduled referral  
appointments

- Before eReferral = 30%
- After eReferral = 60%

Improved appt scheduling  
turnaround

- Before eReferral = 33 days (max)
- After eReferral = 6 days

Improved no show rates

- Average decrease of 5% - 10%

# eReferral Portal: Next Steps



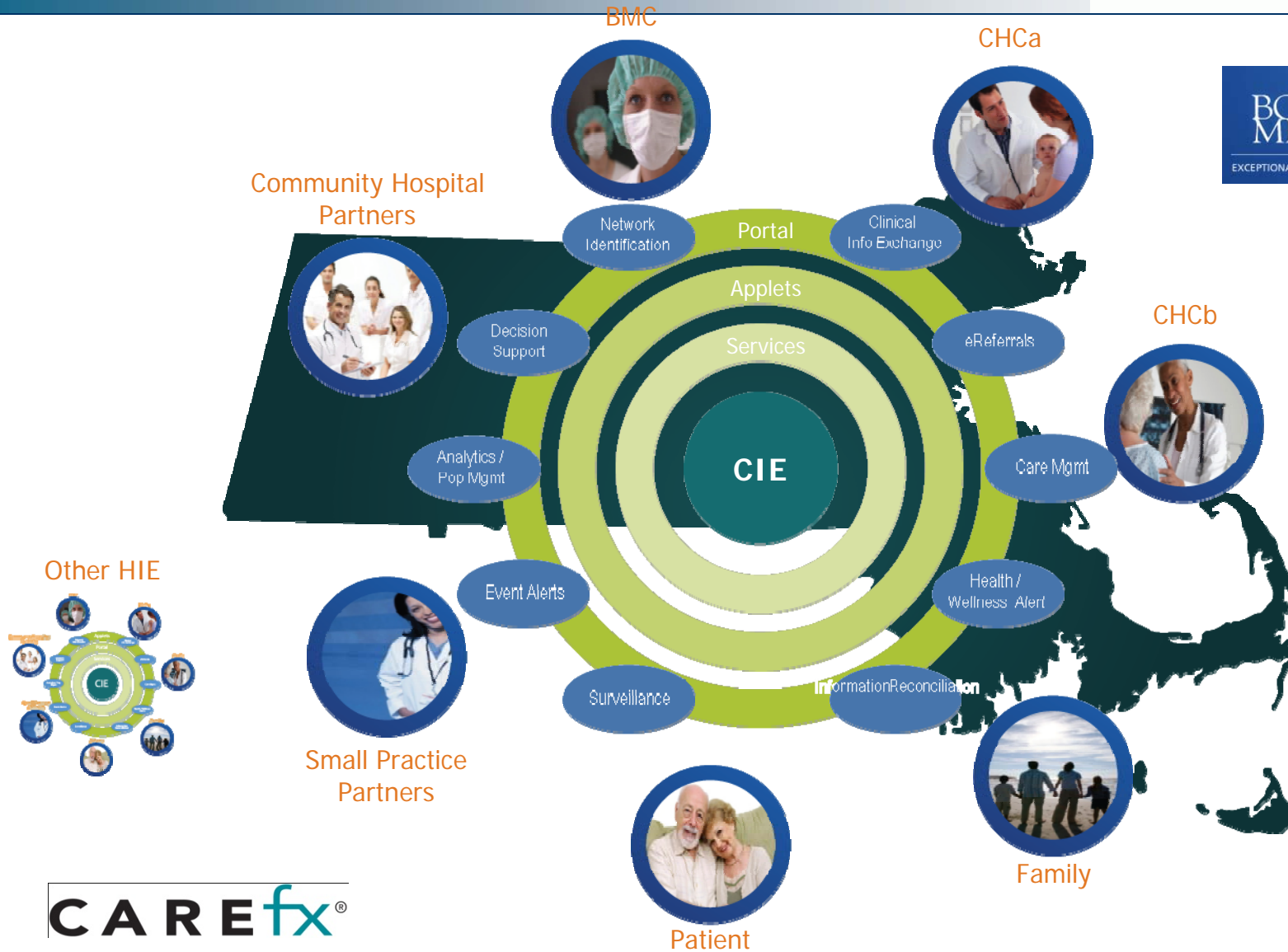
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- Expand to remaining BMC departments
- Open referral cycle between BMC departments and from BMC to CHCs (currently just CHC to BMC)
- Offer eReferral System through BMC website to external non-network providers referring to BMC

# CIE Roadmap: Community of Care



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# Q&A

**CAREfx**<sup>®</sup>  
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Boston Medical Center  
[jjoel.vengco@bmc.org](mailto:jjoel.vengco@bmc.org)



**Thank You for Joining Us Today!**

For more information on the Fusionfx eReferral Solution,  
visit [www.carefx.com/ereferral](http://www.carefx.com/ereferral) or email [info@carefx.com](mailto:info@carefx.com)