Electronic Referral and Consultation Systems (eCR): Improving Primary and Specialty Care Collaboration

May 28, 2014

CALIFORNIA HEALTHCARE FOUNDATION

California Improvement Network

Better Ideas for Care Delivery

Today's Speakers - UCSF/SFGH

Alice Chen
Chief Integration Officer
San Francisco General Hospital

Delphine Tuot
Assistant Professor of Medicine
UCSF Division of Nephrology, San Francisco General Hospital

California Improvement Network Better Ideas for Care Delivery

Today's Speakers - CHCI

Nicole Jepeal
Project Manager
The Community Health Center, Inc.

J. Nwando Olayiwola
Associate Director
Center for Excellence in Primary Care, UCSF

Today's Speakers – Brigham and Women's

Jeffrey Greenberg,
Associate Medical Director, Brigham and Women's Physicians Organization

123,500 patients/clients

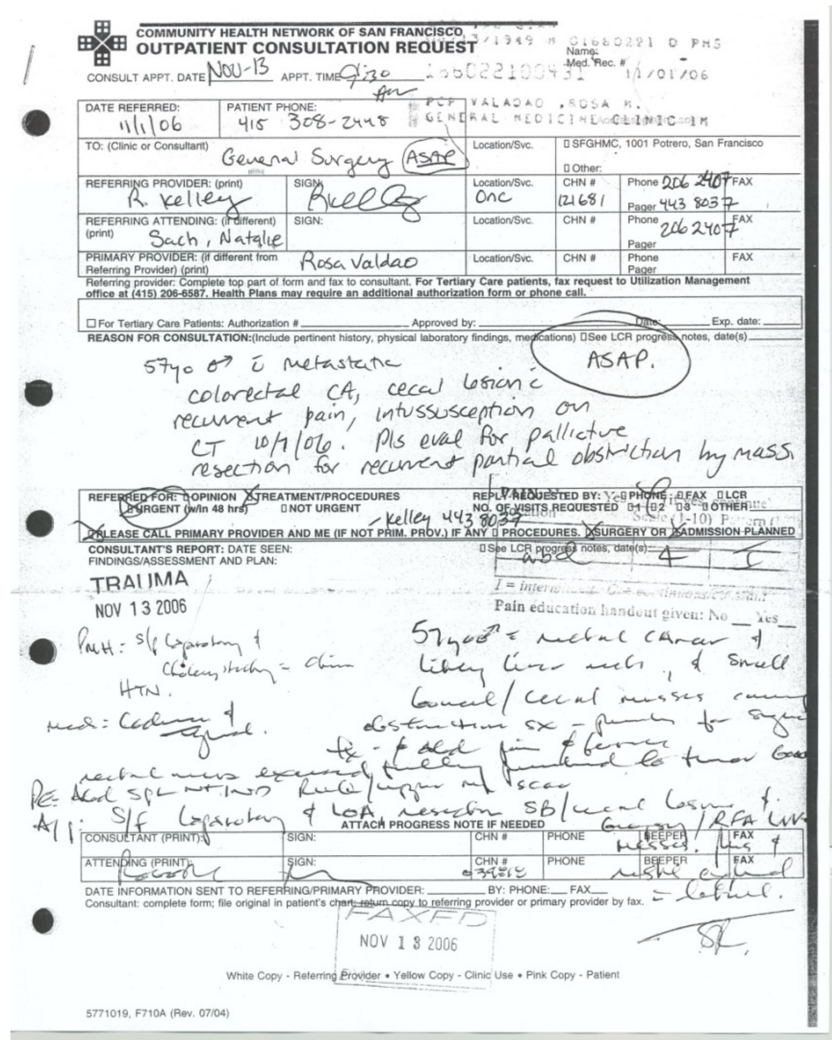
14 primary care health centers
70,000 primary care patients

comprehensive ambulatory
specialty and diagnostic services
332,000 visits in 2012-2013

behavioral health services
acute and trauma care
jail health services
long term care

State of PC-SC Interface Circa 2005

- Paper, telephone, and fax based referral system
- Clerical process of first referred, first scheduled
- Significant inefficiencies
  - referral to wrong clinic
  - unnecessary referrals
  - premature referrals
  - inability to discern referral question
  - lack of equitable triage
- Wait times up to 11 mo



COMMUNITY HEALTH NETWORK OF SAN FRANCISCO
OUTPATIENT CONSULTATION REQUEST

CONSULT APPT. DATE NOV-13 APPT. TIME 9:30 Am

DATE REFERRED: 11/1/06 PATIENT PHONE: 415 308-2448

TO: (Clinic or Consultant) General Surgery (ASAP) Location/Svc. SFGHMC, 1001 Potrero, San Francisco Other:

REFERRING PROVIDER: (print) R. Kelley SIGN: Location/Svc. Onc CHN # Phone 206 2407 FAX Pager 443 8037

REFERRING ATTENDING: (if different) (print) Sach, Natalie SIGN: Location/Svc. CHN # Phone 206 2407 Pager FAX

PRIMARY PROVIDER: (if different from Referring Provider) (print) Rosa Valdao Location/Svc. CHN # Phone Pager FAX

Referring provider: Complete top part of form and fax to consultant. For Tertiary Care patients, fax request to Utilization Management office at (415) 206-6587. Health Plans may require an additional authorization form or phone call.

For Tertiary Care Patients: Authorization # Approved by: Date: Exp. date:

REASON FOR CONSULTATION: (Include pertinent history, physical laboratory findings, medications) See LCR progress notes, date(s)

57yo ♂ c̄ metastatic colorectal CA, cecal lesion c̄ recurrent pain, intussusception on CT 10/1/06. Pls eval for palliative resection for recurrent partial obstruction by mass. ASAP.

REFERRED FOR: OPINION / TREATMENT/PROCEDURES; URGENT (w/in 48 hrs) / NOT URGENT; REPLY REQUESTED BY: PHONE / FAX / LCR; NO. OF VISITS REQUESTED 1 2 3 OTHER

PLEASE CALL PRIMARY PROVIDER AND ME (IF NOT PRIM. PROV.) IF ANY PROCEDURES, SURGERY OR ADMISSION PLANNED

CONSULTANT'S REPORT: DATE SEEN: FINDINGS/ASSESSMENT AND PLAN: See LCR progress notes, date(s)

TRAUMA NOV 13 2006

ATTACH PROGRESS NOTE IF NEEDED

CONSULTANT (PRINT): SIGN: CHN # PHONE BEEPER FAX

ATTENDING (PRINT): SIGN: CHN # PHONE BEEPER FAX

DATE INFORMATION SENT TO REFERRING/PRIMARY PROVIDER: BY: PHONE: FAX

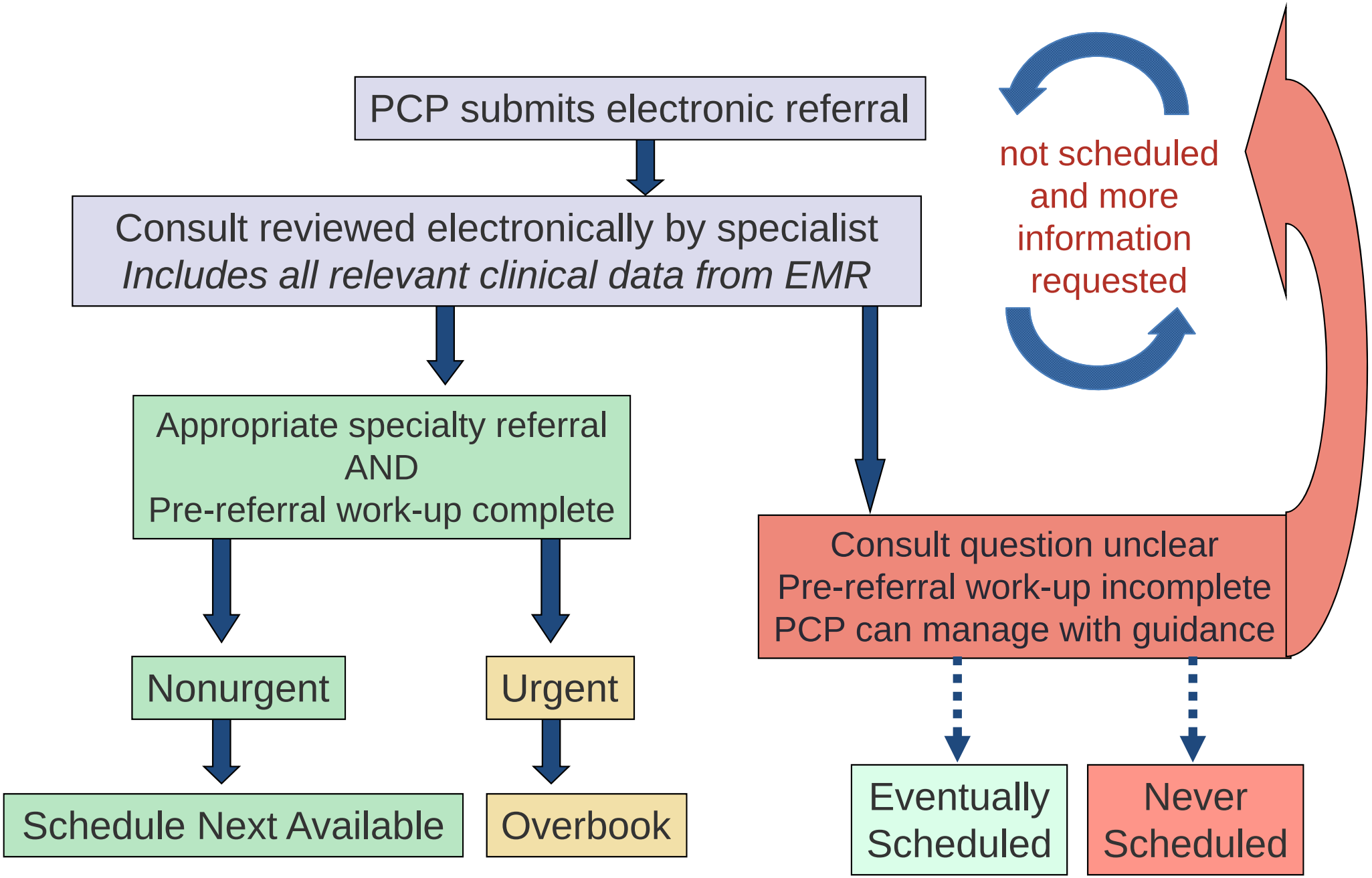
Consultant: complete form; file original in patient's chart; return copy to referring provider or primary provider by fax.

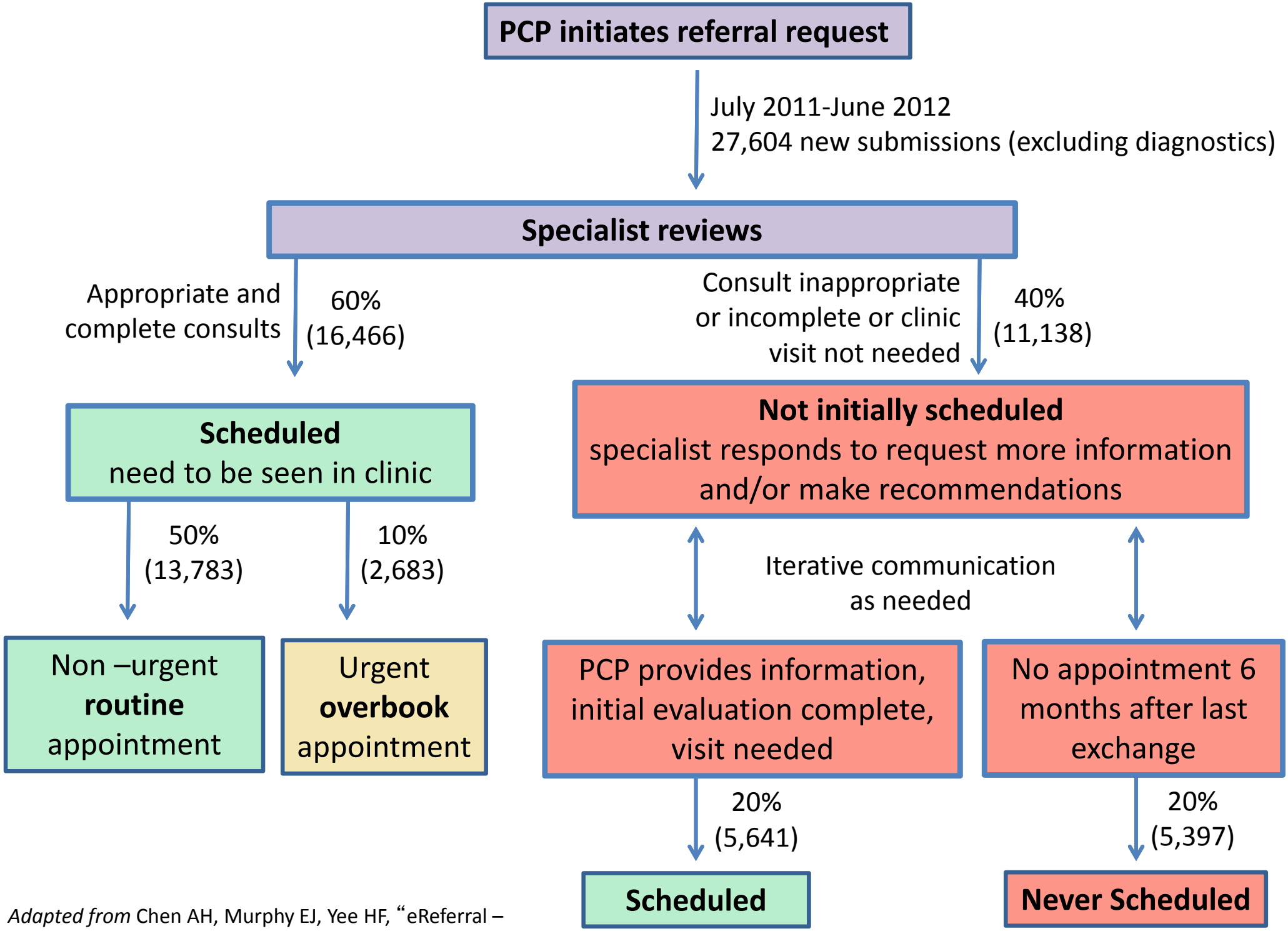
FAXED NOV 1 3 2006

White Copy - Referring Provider • Yellow Copy - Clinic Use • Pink Copy - Patient

5771019, F710A (Rev. 07/04)

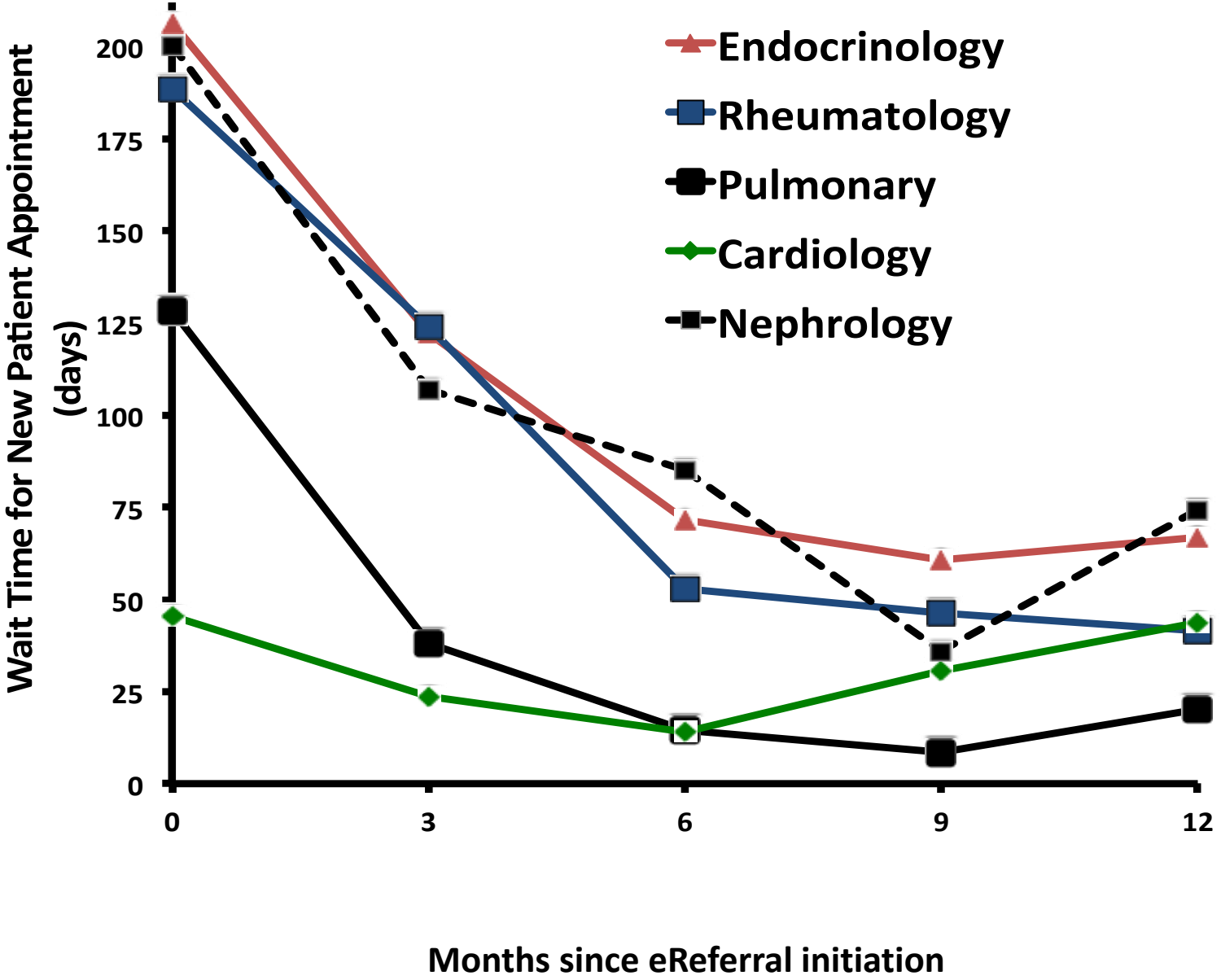
eReferral Workflow





Adapted from Chen AH, Murphy EJ, Yee HF, "eReferral – A New Model for Integrated Care." *NEJM* 2013;368(26):2450-3.

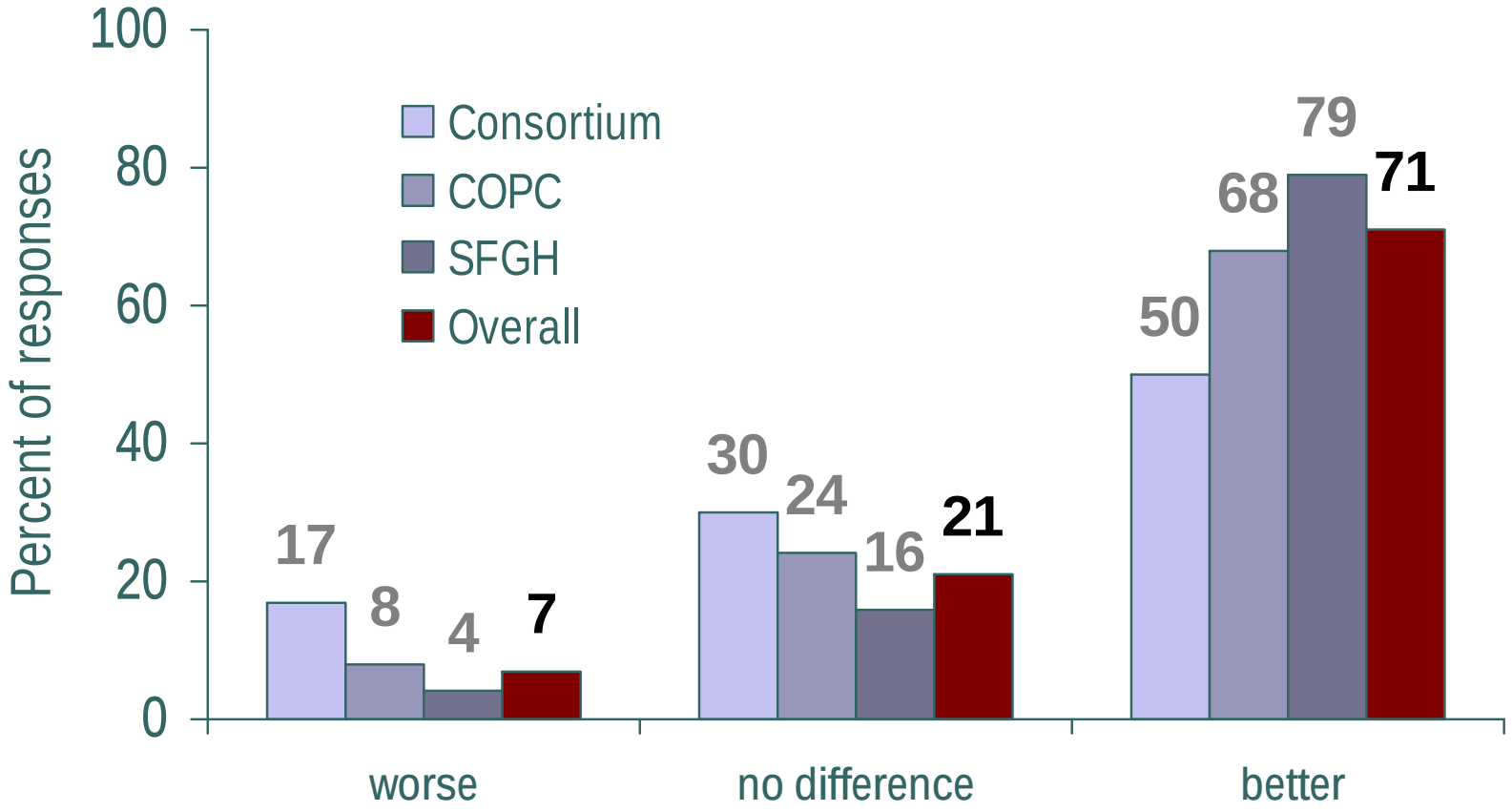
eReferral Impact on Wait Times



Primary Care Satisfaction with eReferral

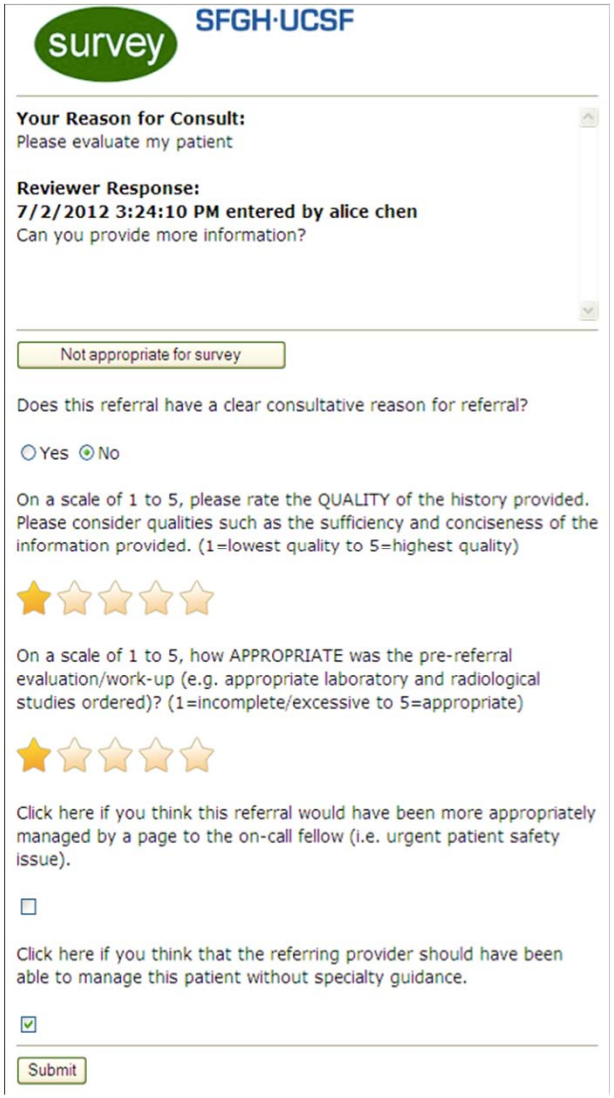
Overall, how has eReferral changed clinical care for your patients?

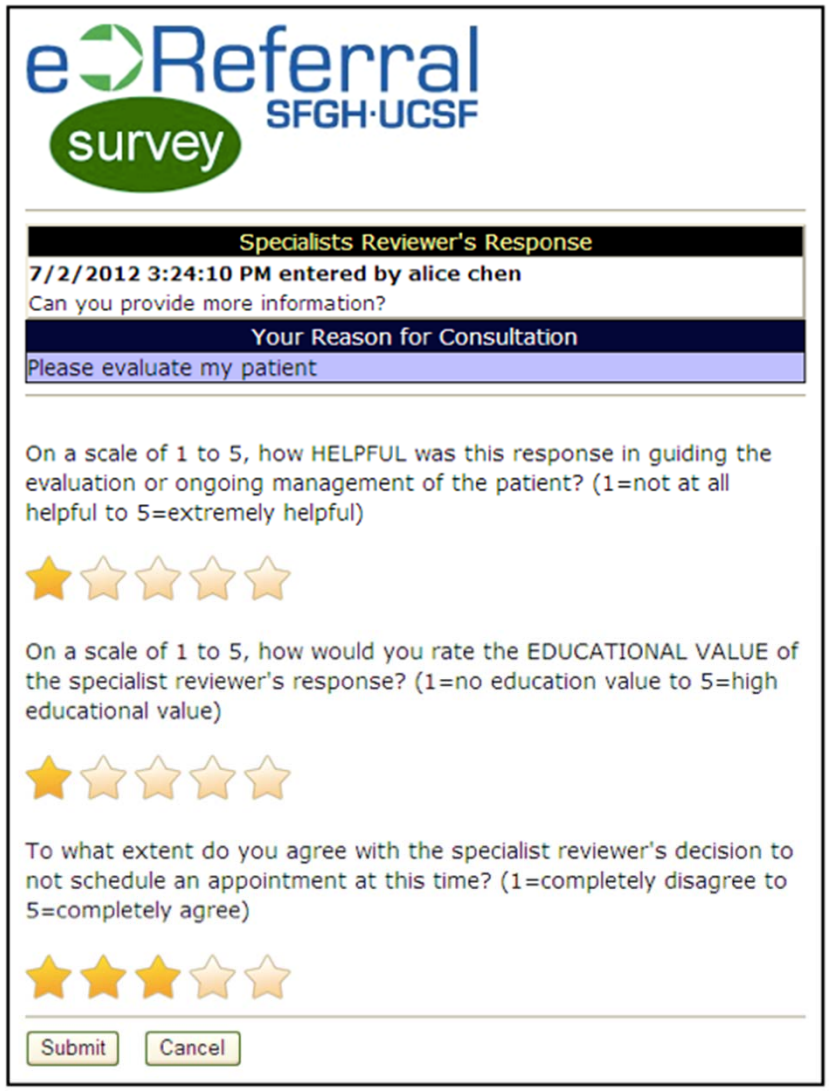
81% response rate (298 of 368)



Kim Y, Chen AH, Keith E, Yee HF, Kushel MB. "Not perfect, but better: primary care providers' experiences with electronic referrals in a safety net health system." *Journal of General Internal Medicine* 2009; 24(5):614-619.

Bidirectional Feedback for Improvement





Widespread Interest in eCR

- Specialty visits comprise >50% of all ambulatory visits
  - For patients <65, 1/3 patients referred to specialist/year
  - For patients ≥ 65 average of 2 referrals per person/year
- On average, for every 100 Medicare patients a PCP takes care of, s/he has to interact with 99 other physicians in 53 different practices
- Lack of timely specialty care can result in adverse outcomes, unnecessary ED visits and hospitalizations, and potentially higher health care costs

Key Informant Interviews

Goals

- Drivers
- Facilitators/barriers to eCR implementation
- Best practices
- Evaluation metrics

Study Participants

California

- AccessOC
- Alameda Health System
- L.A. Care Health Plan
- Los Angeles County Department of Health Services
- Marin Community Clinics
- Riverside County Regional Medical Center
- San Mateo Medical Center
- UCLA Health
- UCSF Medical Center
- Ventura County Health Care Agency

United States

- Brigham and Women's Hospital
- Community Health Center, Inc
- Denver Health
- Harborview Medical Center
- Hawaii Medical Service Association
- University of Massachusetts Memorial Health Care

International

- Bruyere Research Institute (Ottawa, Canada)
- National Health Service (England)

Drivers of Implementation

eReferral

- Enhance clinical efficiency
  - Triage
  - Legibility
  - Communication between providers
  - Efficient first visit
- Enhance operational efficiency
  - Referral tracking for PCPs

eConsult

- Improve access to specialty care
  - Supply/demand mismatch
  - Desire to enhance PCP capacity
- Delivery of coordinated care
- Patient satisfaction
- Patient retention; decrease leakage to other delivery systems

Facilitators/Barriers to eCR Implementation

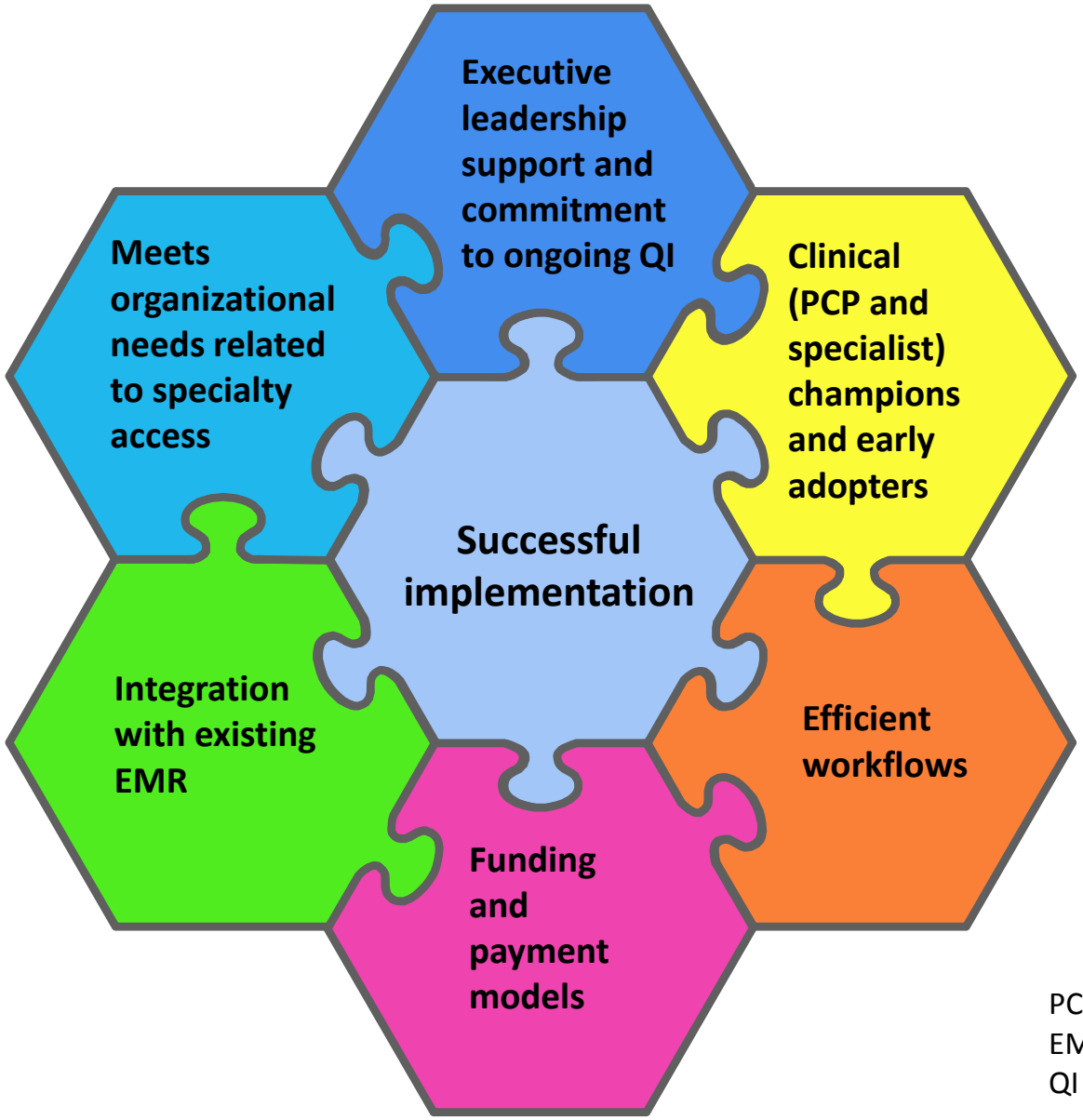
Facilitators

- Engaged leadership
  - Executives
  - Clinician leaders
- System responds to organizational challenges
- Strong partnerships with stakeholders
- User-friendly technology integrated into clinician workflows
- Reimbursement mechanisms for clinicians
- Dedicated program staff for outreach/marketing

Barriers

- Clinician resistance to change
  - PCP workload
  - Changes in PCP workflow
  - Specialist workload
- Lack of integration with EMR
- Inadequate funding
  - vendor platform and on-going support
  - Specialist compensation
- Liability concerns

Elements of Successful Implementation of Electronic Consultation Systems



PCP = primary care provider
EMR = electronic medical record
QI = quality improvement

Graphic template: www.presentationmagazine.com

eReferral Team

CENTER FOR INNOVATION IN ACCESS AND QUALITY

eReferral SFGH·UCSF

Alice Chen, eReferral Director

Peter Cheng, DPH Senior Software Engineer

Kiren Leeds, CIAQ Manager

Tekeshe Mekonnen, eReferral Program Manager

Kjeld Molvig, DPH Internal Application Manager

Lisa Murphy, eReferral Specialty Lead

Justin Sewell, CIAQ/evaluation faculty

Delphine Tuot, CIAQ/eReferral faculty, lead evaluator

www.ciaqsf.org

THANK YOU!

Blue Shield of California Foundation

California HealthCare Foundation

Kaiser Permanente Community Benefit

San Francisco Health Plan

SFGH Foundation

Community Health Center, Inc Middletown, CT

J. Nwando Olayiwola, MD, MPH, FAAFP

Nicole Jepeal, BA

weitzman institute
inspiring primary care innovation

Community Health Center, Inc.

Overview

1. Organizational Background & Demographics
2. The Problem
3. The Solution
4. eConsult Model & Workflow
5. Results
    1. Visits and access
    2. Clinical
    3. Provider satisfaction
6. Conclusions & Next Steps

Information in this presentation is currently in press – please do not reprint or redistribute

Study funded by the Connecticut Health Foundation

Organizational Background and Demographics

Community Health Center, Inc. Where health care is a right, *not a privilege*, since 1972.

Our Vision: Since 1972, Community Health Center, Inc. has been building a world-class primary health care system committed to caring for underserved and uninsured populations and focused on improving health outcomes, as well as building healthy communities.

CHC Locations in Connecticut

CHCI's Weitzman Institute is a community-based research institute focused on quality improvement and innovation in primary care

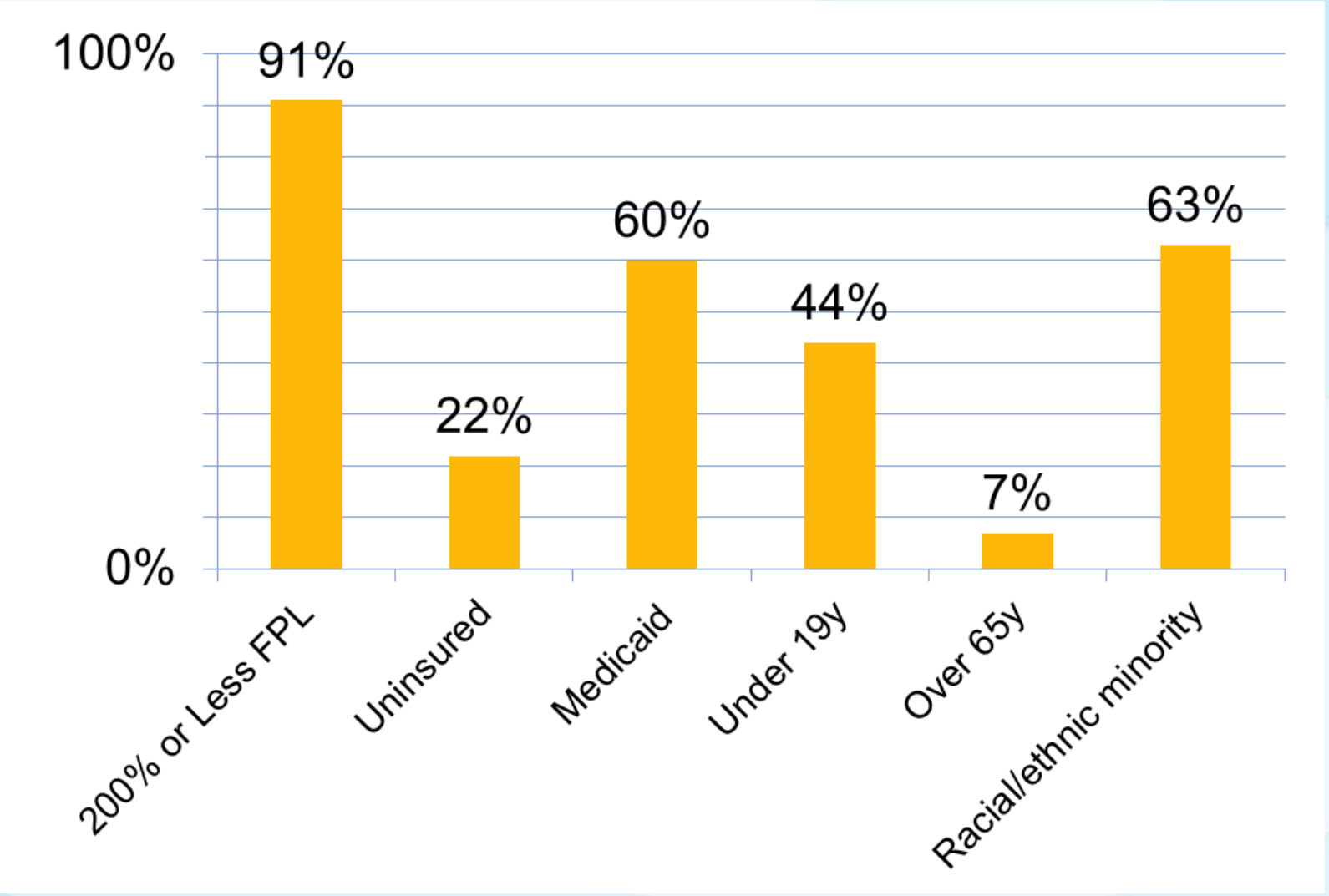
CHC Inc. Profile:

- Founding Year – 1972
- FQHC Designation
- Primary Care Hubs – 13
- No. of Service Locations - 218
- Licensed SBHC locations – 24
- Organization Staff – 500+
- Patients who consider CHCI their health care home – 130,000
- Health care visits – 410,000 per year

Innovations

- Integrated medical, dental and behavioral health services
- Fully integrated EHR
- Patient portal and HIE
- Extensive school-based care system
- "Wherever You Are" Health Care
- Level 3 PCMH-NCQA
- Joint Commission PCMH
- Centering Pregnancy model
- Residency training for new nurse practitioners and post doc psychologists

CHCI Patient Demographics



FPL = Federal Poverty Level
Y = Years

From:
Sent: Wednesday, June 13, 2012 3:20 PM
To:
Subject: RE: Orthopaedic and Dermatology

Here is the latest greatest news:

Dr. Orthopaedics—states that ALL orthopaedic referrals from the Shoreline Area are to be scheduled locally. If no local orthopaedics, then they are to be referred to .

Dr. —Dermatology—states that he will only see patients that live in the following areas, New London, Groton, Mystic, Gales Ferry and Ledyard. No where else.

For me, this means I have no where to send a managed healthcare patient when they need to see an Orthopaedic. (Unless they have Medicare as the primary coverage, then Orthopaedics will see them.)
As for dermatology, patients that live in Waterford have no where to go at this time.

Can my job get any harder to do???????????

The Problem:
Primary Care-Specialty Care Access

From:
Sent: Thursday, May 10, 2012 12:51 PM
To:

Cc:
Subject: ENT

I just spoke with at ENT and as of today they are no longer accepting ENT patients. The doctor there is not renewing his contract. She does not know if they will be accepting patients in the future.

From:
Sent: Friday, January 20, 2012 10:08 AM
To:

Cc:
Subject: opthalmology

Just as an FYI ophthalmology is not currently taking any new husky patients.

JUN-20-2012 09:58 FROM: TO:18602242760 P.1

Director of Endoscopy Department at Hospital

November 6, 2008 1-31-12

RE: GI COVERAGE FOR AND AND

To all GI doctors:

There has been a revision in the coverage below. I am writing to announce as of January 1, 2009, that we are all going to be on the same schedule coverage to the clinics doctors, and , and patient birthday month coverage for GI specialists. The list below confirms the yearly schedule is as follows:

January:
February:

March:
April:
May:
June:
July:
August:
September:
October:
Mapelli.
November:
December:

Can you please let me know if this is not the correct schedule we are to use for GI referrals? Thank you for your help in this important matter.

Sincerely,

Director of Endoscopy

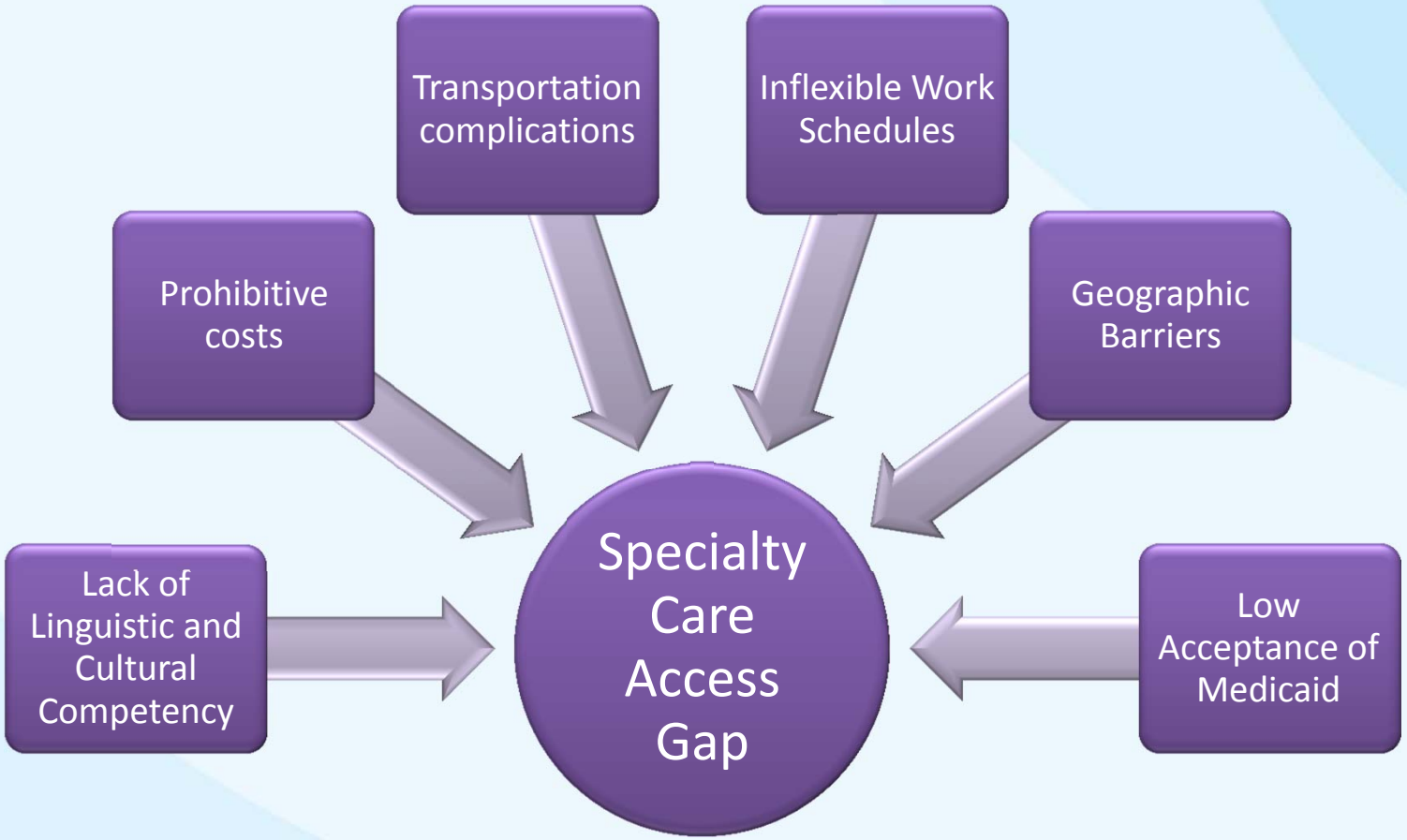
The Current Specialty Care Paradigm

Wait Times & Costs for Specialty Care

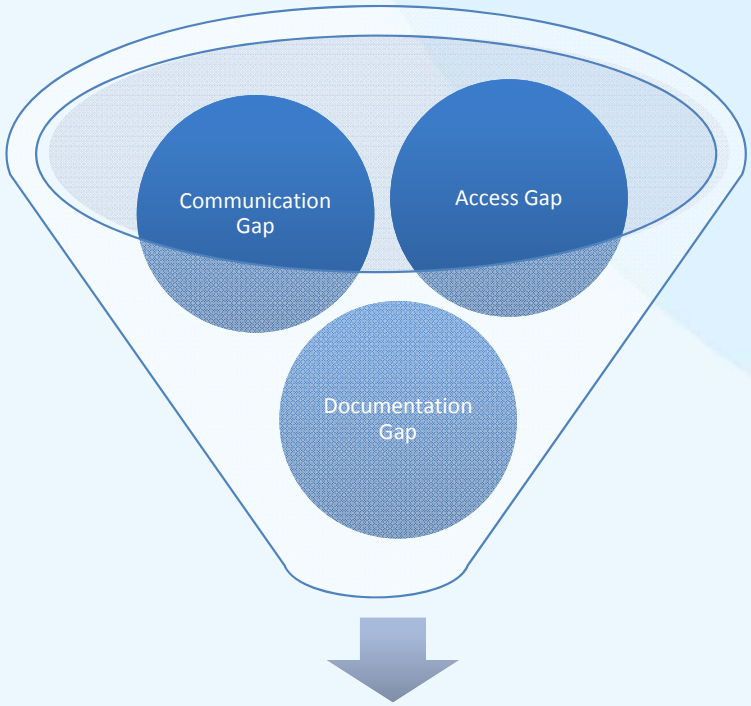
Specialty	Average Wait Time (days)	Average Cost ($/visit)
Allergy/Immunology	36	224
Cardiology	**18**	**470**
Colorectal Surgery	30	305
Dermatology	48	157
Endocrinology	51	266
Gastroenterology	31	206
General Surgery	19	150
Neurology	35	278
Ophthalmology	17	130
Orthopedic Surgery	15	295

CHC Referral Data – February 2011

Contributors to Access Issues



Pilot Data – Cardiology Referrals – Care Gaps



Incomplete Referrals

39% of cardiology referrals were confirmed as completed in pilot data

Wait time to completion over 50 days

The Solution – eConsult Model

The CHCI eConsult Model

- Based out of an FQHC not an academic health center
- Contract with UCONN Health Center
- Utilized a secure messaging module within EHR
- Providers had the ability to attach relevant pieces of patients' chart
- The process was invisible to the primary care provider
- Response within 2 business days
- If a F2F visit was required, the patient could be seen by the specialist of their choice

Referral (Outgoing)

Patient: Test, Adult Imz1 (863359) [Sel] [Info] [Hub]

Insurance: [Sel] POS: 11

*Ref From: Test, Test [...]

Facility From: [...]

Auth Code:

Start Date: 02/21/2012

Referral Date: 02/21/2012

Open Cases: [...] [N]

Appt Date: 02/21/2012

Received Date: 02/21/2012

Priority: Routine

*Ref To

Provider: Carter, Shanti [...] [Clear]

Specialty: Cardiology [ ] Send to eHX

Facility To: [...] [Clear]

Auth Type: [...]

End Date: 02/21/2013

*Assigned To: [...]

Unit Type: V (VISIT)

Status: (•) Open ( ) Consult Pending ( ) Addressed

Diagnosis / Reason | Visit Details | Notes | Structured Data

*Reason [Add] [Browse] [Remove]

Sl. No	Description
1	Econsult for patient with identified test pain. The EKG, medical summary and CCD are attached.

Diagnosis [Previous Dx] [Add] [Remove]

Code	Name
428.0	CHF [Congestive heart failure], unspecified

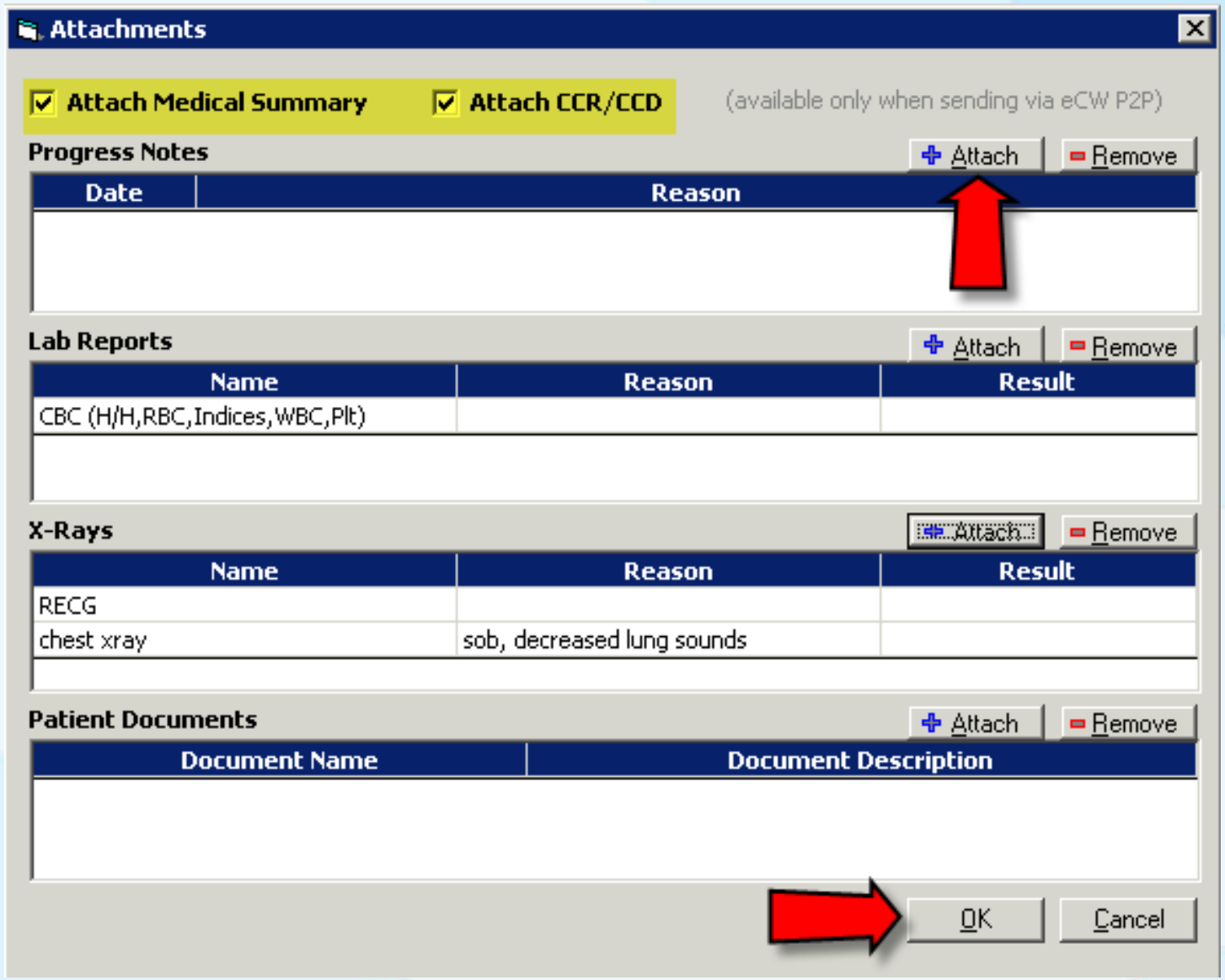
Procedures [Add] [Remove]

Code	Name

How would you like to send the referral?

- Print
- Print with Attachments (5)
- Fax
- Fax with Attachments (5)
- Send (EHX)
- Send instantly to Carter, Shanti via eCW P2P

[Scan] [Attachments (5)] [Logs] [OK] [Cancel] [Send Referral]


Attachments
Attach Medical Summary
Attach CCR/CCD
(available only when sending via eCW P2P)
Progress Notes
Attach
Remove
Date
Reason
Lab Reports
Attach
Remove
Name
Reason
Result
CBC (H/H,RBC,Indices,WBC,Plt)
X-Rays
Attach
Remove
Name
Reason
Result
RECG
chest xray
sob, decreased lung sounds
Patient Documents
Attach
Remove
Document Name
Document Description
OK
Cancel

Facilitators

- Multi-level stakeholder engagement
- Grant funded
- Process did not increase workload of PCP
- Centralized Referral Coordinator
- eConsult first pass mandate

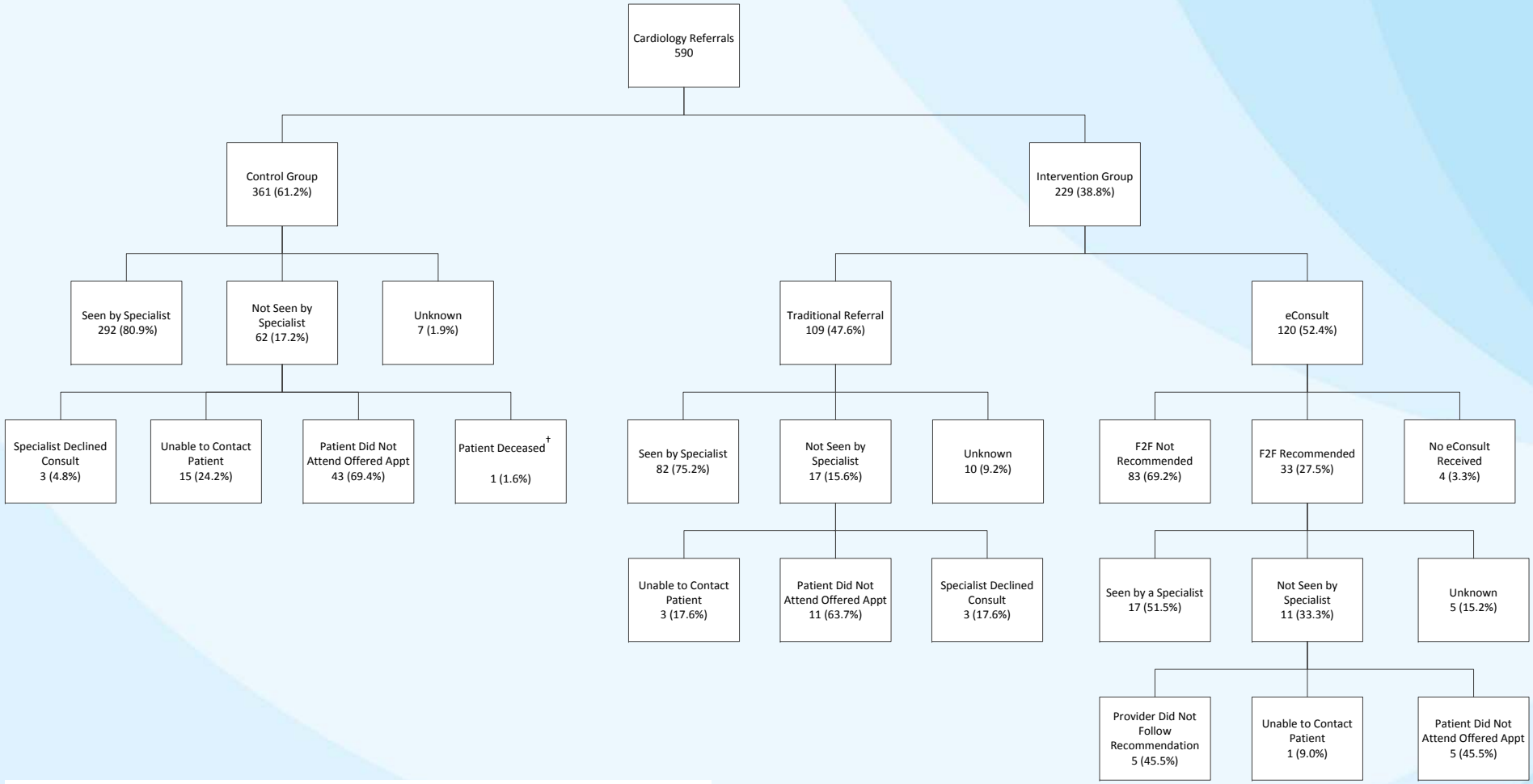
Barriers

- Provider willingness to change
- Interoperability – ease of use on specialty end, browser compatibility
- Documentation process
- No sustainable payment model

eConsult Workflow and Consort Diagram

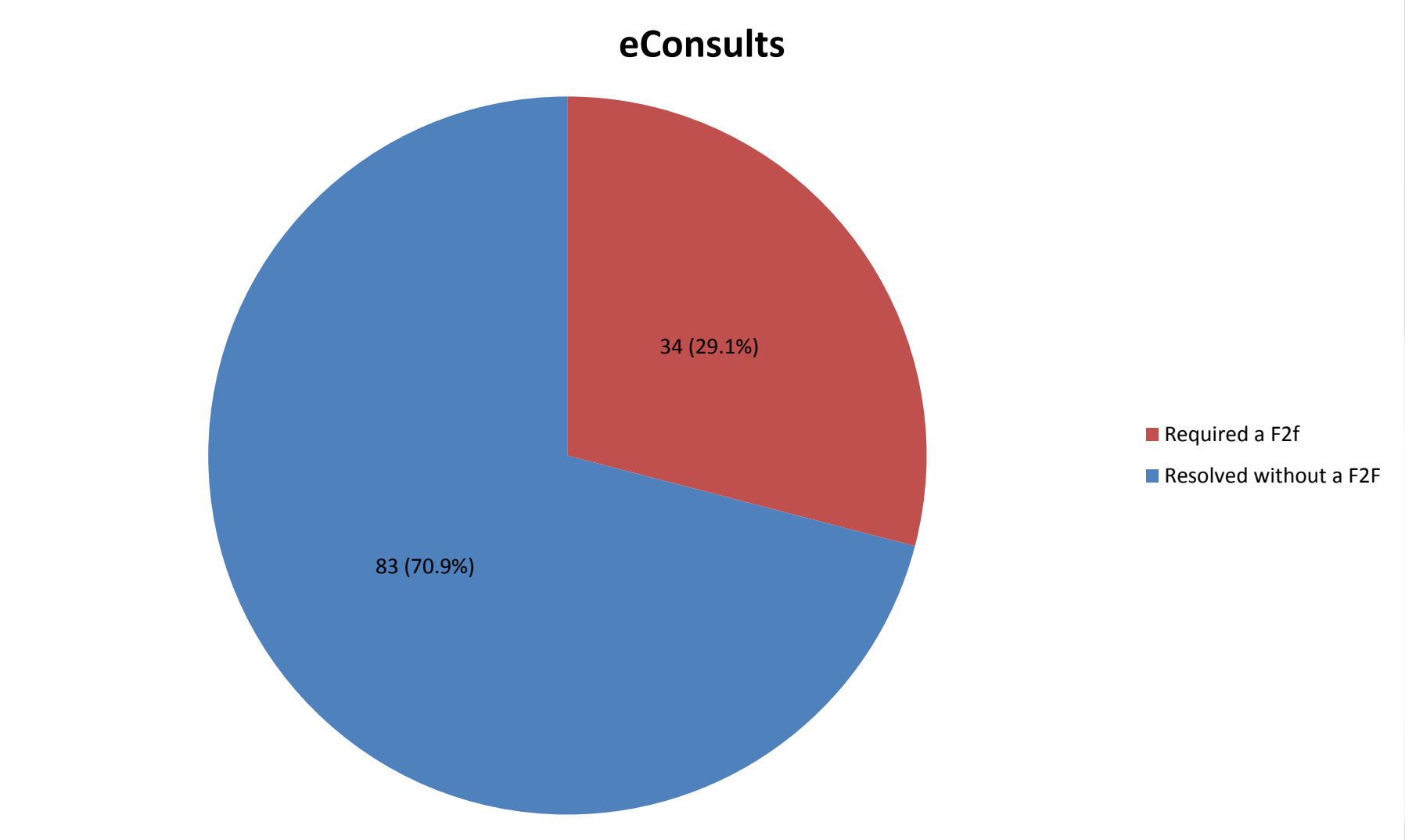
eConsult Flow Diagram

Figure 1.Workflow and Volume of Cardiology Referrals, August 1, 2012 through July 31, 2013



The flow chart illustrates the result of every cardiology referral during the 1 year study period.
*F2F is a face to face appointment
**Appt is an appointment
†Patient deceased due to a non-cardiac related event

Reduction in F2F visits



Results

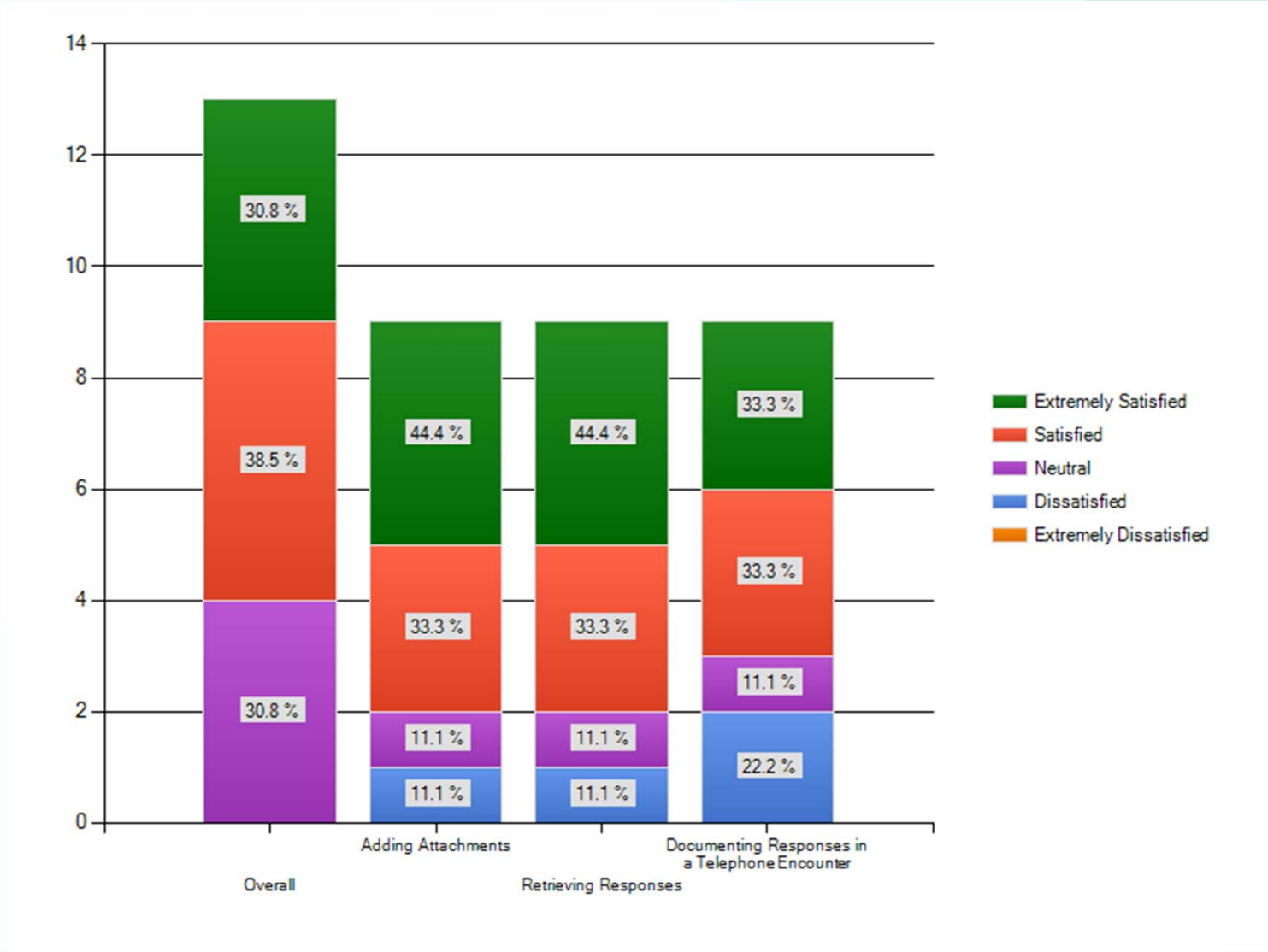
Cox Regression Model Comparing Time to Visit with Cardiologist among Intervention Groups (N = 590).										
		Model 1					Model 2			
	Variable	Exp(Coeff)	Lower CI	Upper CI	Pr(>|z|)		Exp(Coeff)	Lower CI	Upper CI	Pr(>|z|)
Analysis 1[a]										
	Intervention	1.45	1.21	1.74	<0.001		--	--	--	--
	Intervention eConsult	--	--	--	--		3.49	2.78	4.38	<0.001
	Intervention Traditional	--	--	--	--		0.80	0.63	1.03	0.080
Analysis 2[b]										
	Intervention	1.25	1.03	1.5	0.021		--	--	--	--
	Intervention eConsult	--	--	--	--		2.24	1.77	2.82	<0.001
	Intervention Traditional	--	--	--	--		0.81	0.63	1.03	0.089

Comparing Time to Visit with Cardiologist among Intervention Groups (N = 590).							
	Time to visit with cardiologist	A. Median time to visit with cardiologist	B. Median time to visit with cardiologist	A. Patients not seeing a cardiologist within 31 days of referral	B. Patients not seeing a cardiologist within 31 days of referral	A. Patients never seeing cardiologist face to face	B. Patients never seeing cardiologist face to face
	Range (days)	Median (days)	Median (days)	%	%	%	%
Intervention -eConsults	0 – 65	4	5	10	19	3	17
Intervention -Traditional	0 – 294	29	29	48	48	25	25
Control	0 – 153	24	24	38	38	19	19

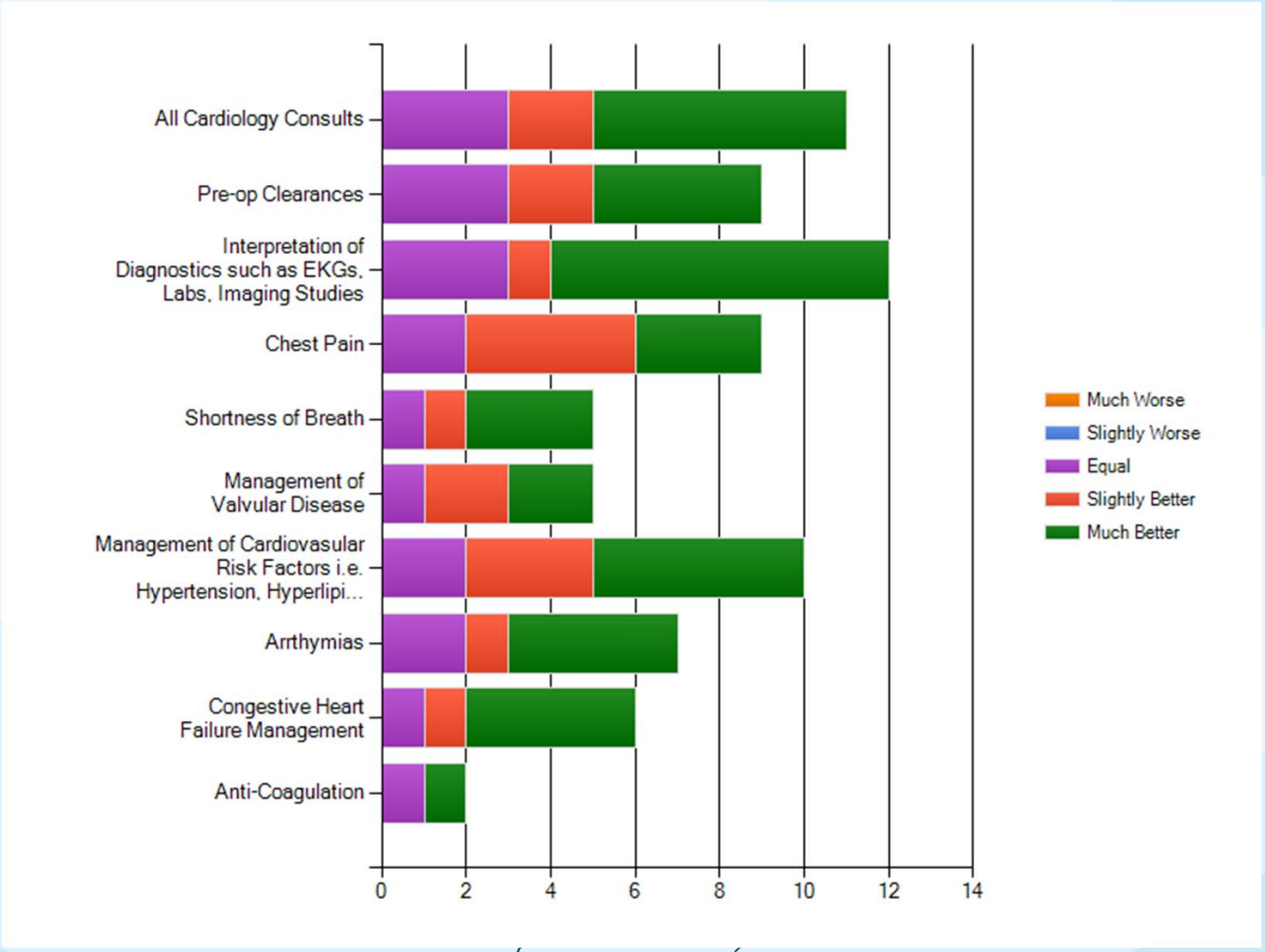
Clinical End Points				
	Intervention			Control
	Total N=229	Traditional Pathway N=109	eConsults Pathway N=120	N=361
	no. (%)			no. (%)
Death from any Cause	0	0	0	1 (0.3)
Death from Cardiovascular Causes	0	0	0	0
Myocardial Infarction	0	0	0	0
Coronary Artery Bypass Surgery	0	0	0	0
Catheterization with Stenting or Angioplasty	3 (1.3)	1 (0.9)	2 (1.7)	2 (0.6)
Diagnostic Catheterization	1 (0.4)	1 (0.9)	0	6 (1.7)
ED Visits with possible Cardiac Symptoms*	4 (1.7)	3 (2.8)	1 (0.8)	21 (5.8)
Hospitalization for Arrhythmia	2 (0.9)	2 (1.8)	0	5 (1.4)
Hospitalization for Atypical Chest Pain	6 (2.6)	4 (3.7)	2 (1.7)	10 (2.8)
Hospitalization for Syncope or Near Syncope	0	0	0	4 (1.1)
Hospitalization for Congestive Heart Failure	2 (0.9)	1 (0.9)	1 (0.8)	0

* p= 0.02 for ED Visits with Possible Cardiac Symptom. No other end points were statistically different.

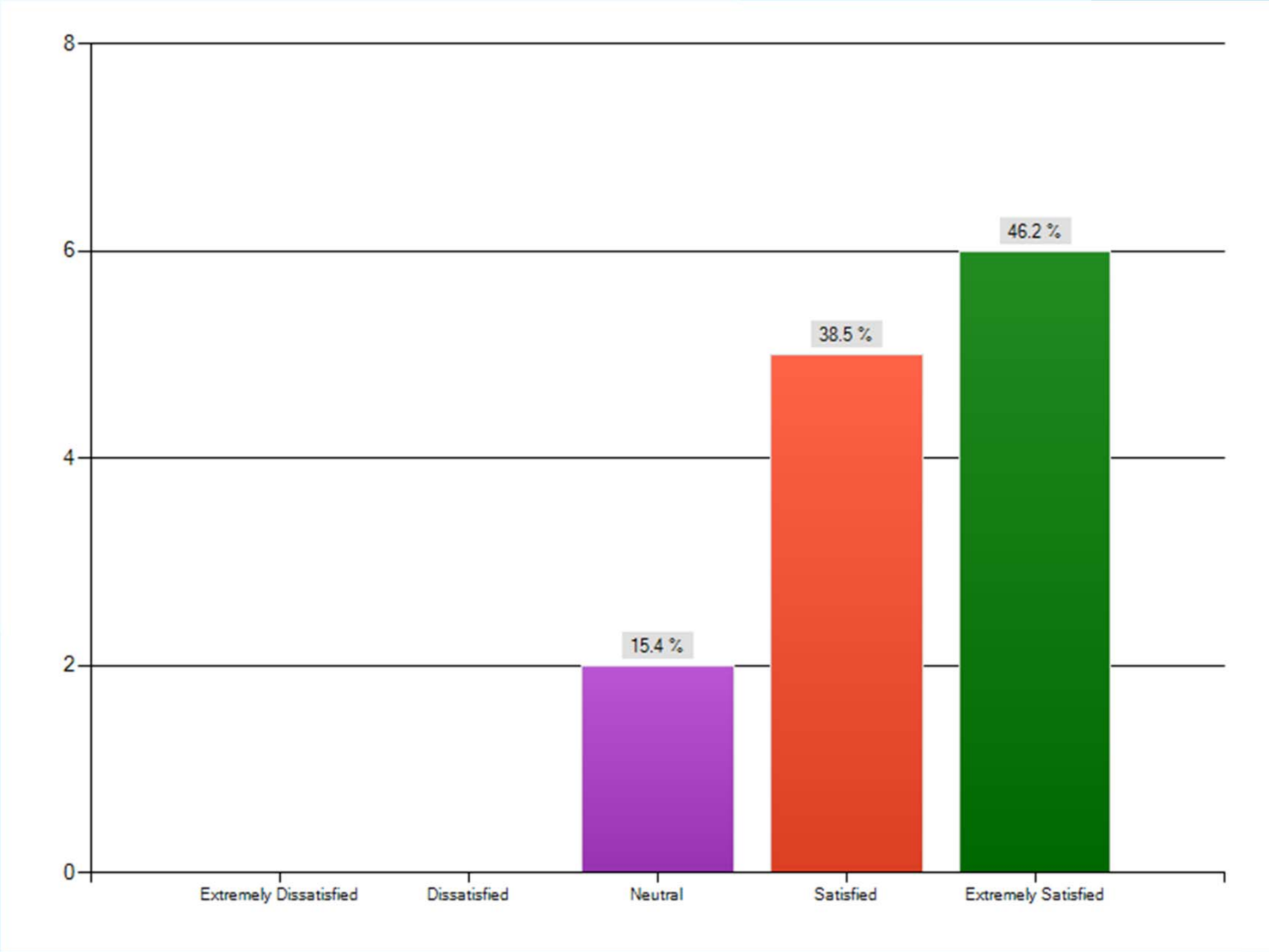
How Satisfied Are You with the Ease of the eConsult Process?



Compared to a Traditional Cardiology Referral How Would You Rate the Quality of the Content of eConsult Responses?

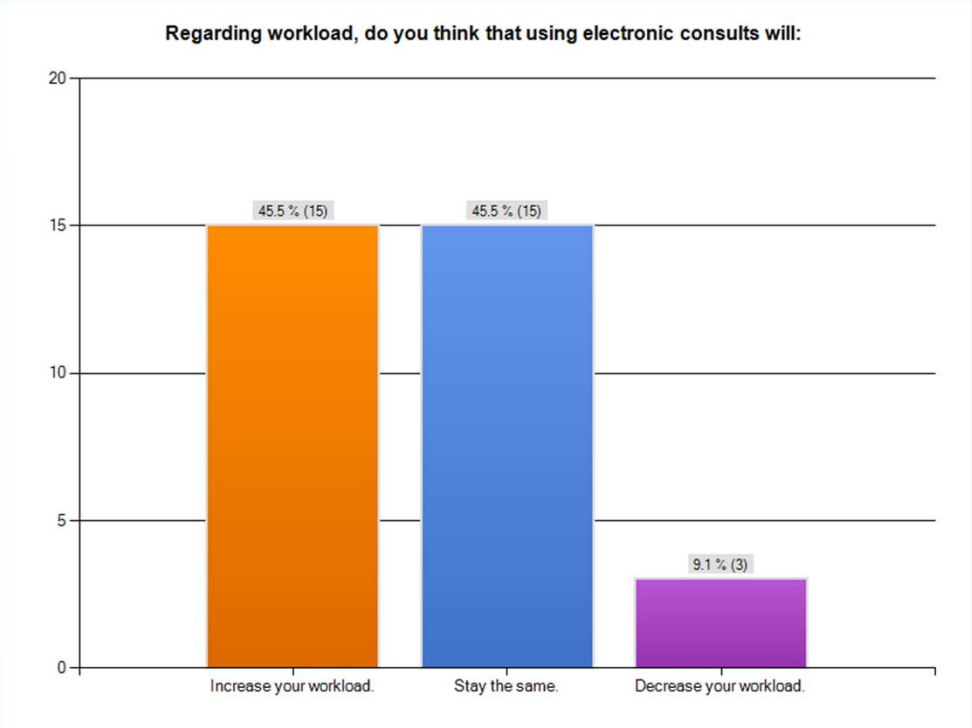


How Satisfied Are You with the eConsult Response Time?

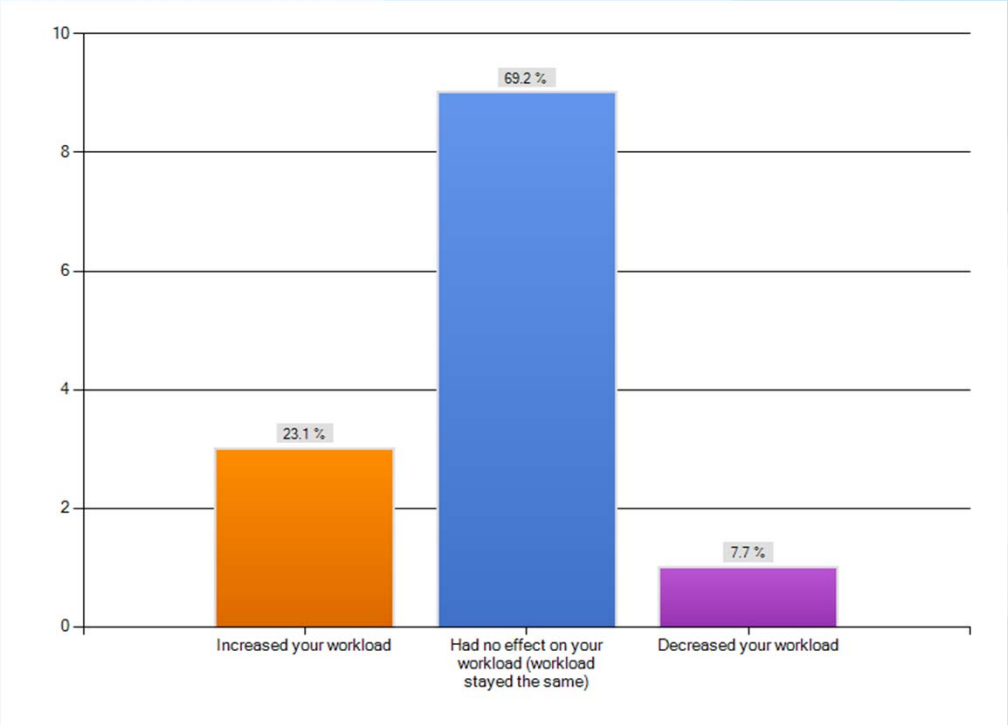


Regarding Workload, Has Sending eConsults:

Pre-Intervention Survey

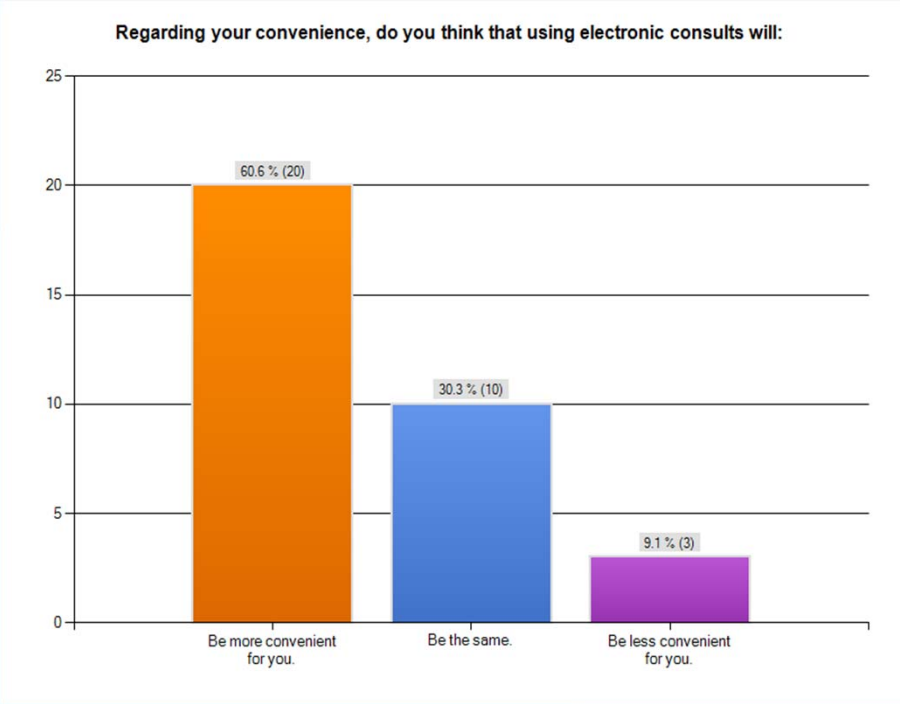


Mid-Intervention Survey

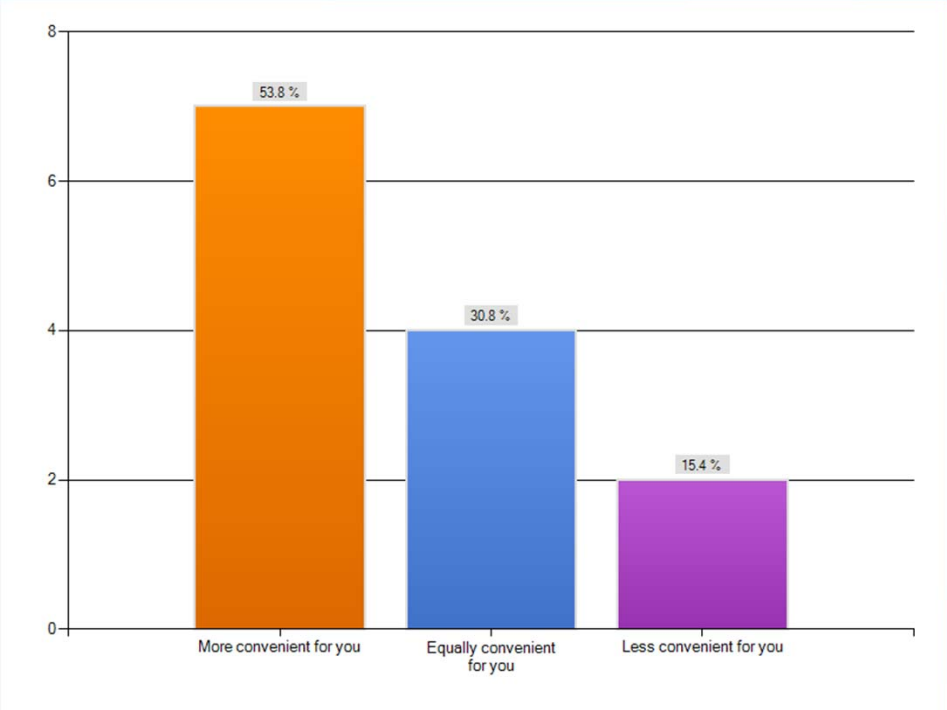


Regarding Convenience, Is Sending eConsults:

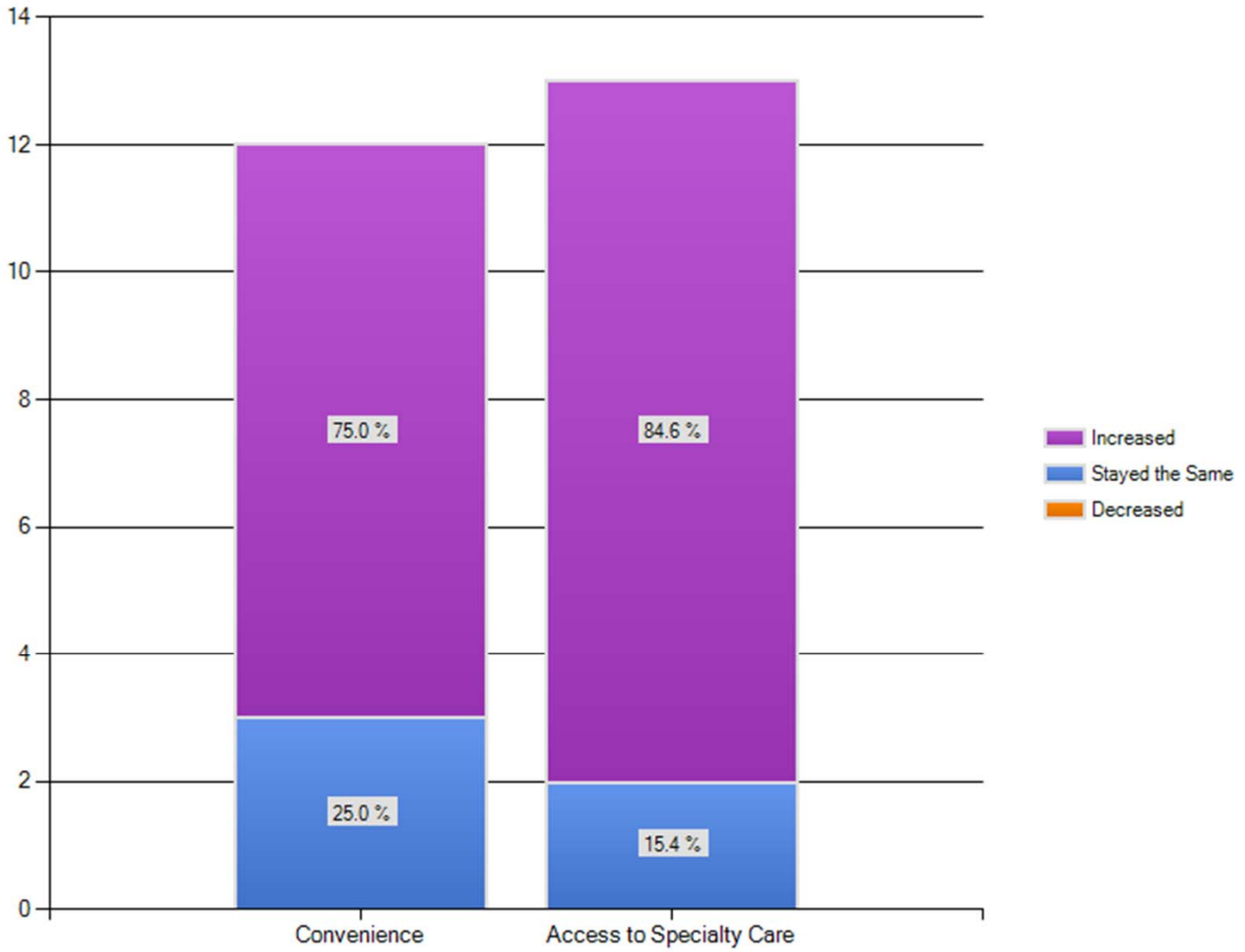
Pre-Intervention Survey



Mid-Intervention Survey



How Have eConsults Affected Your Patients?



Conclusions and Next Steps

NEW ENGLAND ECONSULT NETWORK

What's Next?

- Sustainable Infrastructure
- Payment Model
- Beyond Geographic Barriers
- Outside the Safety Net
- Multi-payer Engagement

PCHC Penobscot Community Health Care

Where health care is a right, not a privilege, since 1972. Community Health Center, Inc.

ProHealth PHYSICIANS

Central eConsult Hub

Web-Based Platform

Patient's EHR

Contact Us

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Building a Medical Neighborhood at Brigham and Women's Hospital

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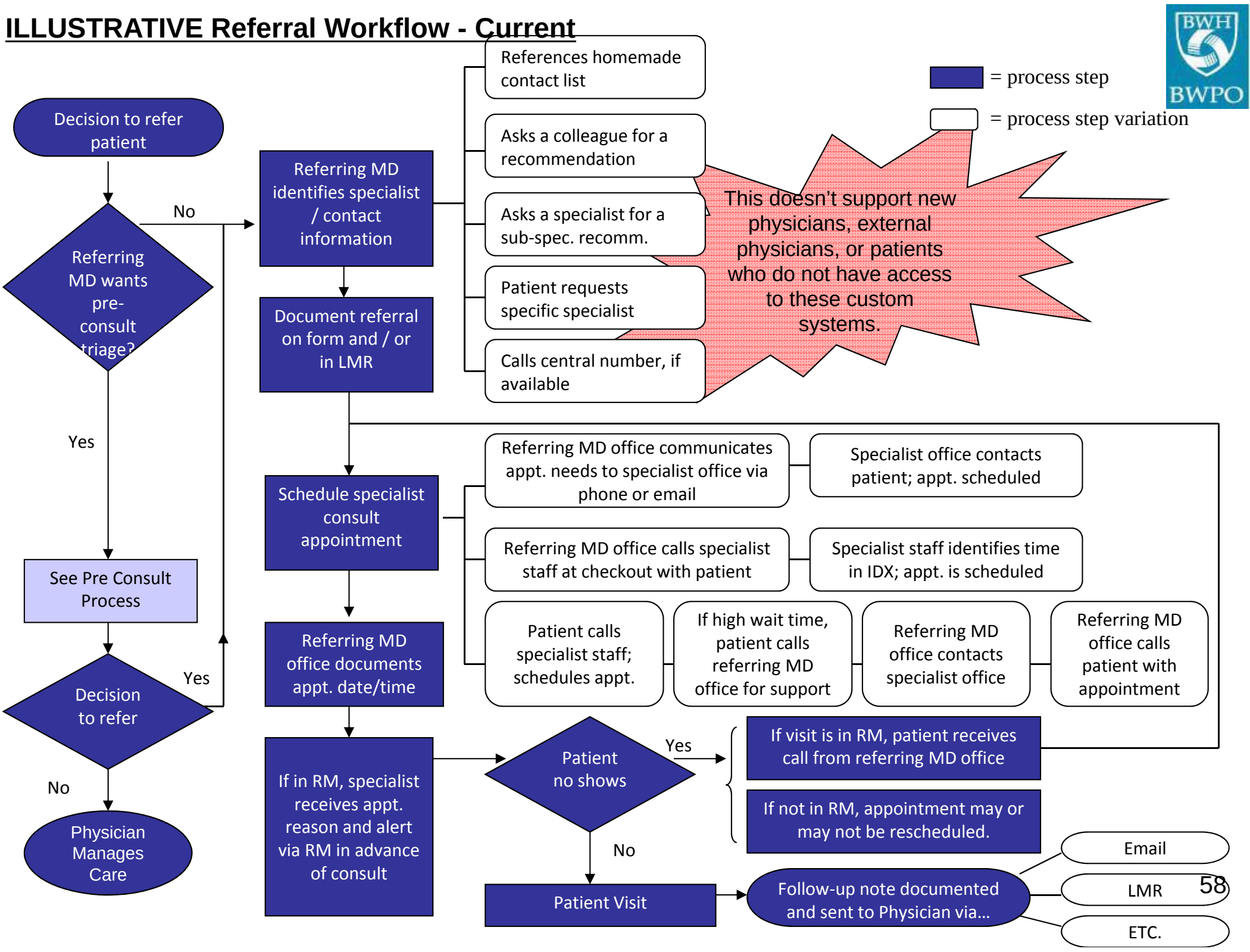
Organization Context

- Brigham and Women's Hospital is a 777-bed academic medical center in Boston, MA
- Teaching affiliate of Harvard Medical School
- 1,600-member physicians organization, majority of whom are employed (though not always salaried)
- Owned by corporate parent Partners Healthcare, an umbrella organization with two AMCs, 4 community hospitals, and ~6,000 physicians (including BWH/BWPO)
- BWH has home-grown outpatient EMR and inpatient CPOE, but no inpatient EMR
- Implementing Epic in May 2015

Our Referral Problem

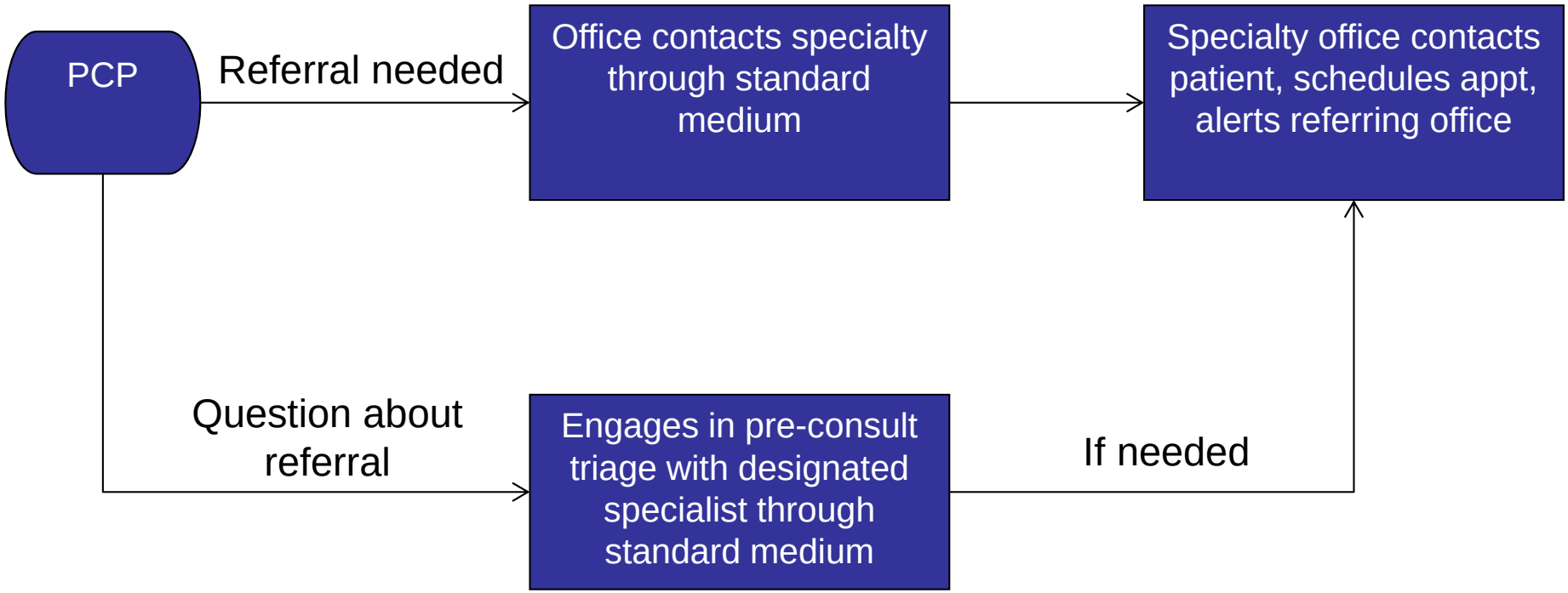
- We have no robust system to facilitate referrals to BWH specialists
- This results in:
  - Inequity and unpredictable ***experience*** for referring providers and patients
  - Minimal triage and poor ***access***
  - ***Inefficient*** workarounds, back doors
  - ***Leakage*** of referrals outside of BWH and difficulty in attracting external referrals

ILLUSTRATIVE Referral Workflow - Current



Vision: Why Can't It Look Like This?

One process for all specialties:



Current System Leads to Many Failures

Inefficiency

- Referring physicians – both PCPs and specialists, both internal and external – have to re-learn referral process for each specialty, and sometime each physician

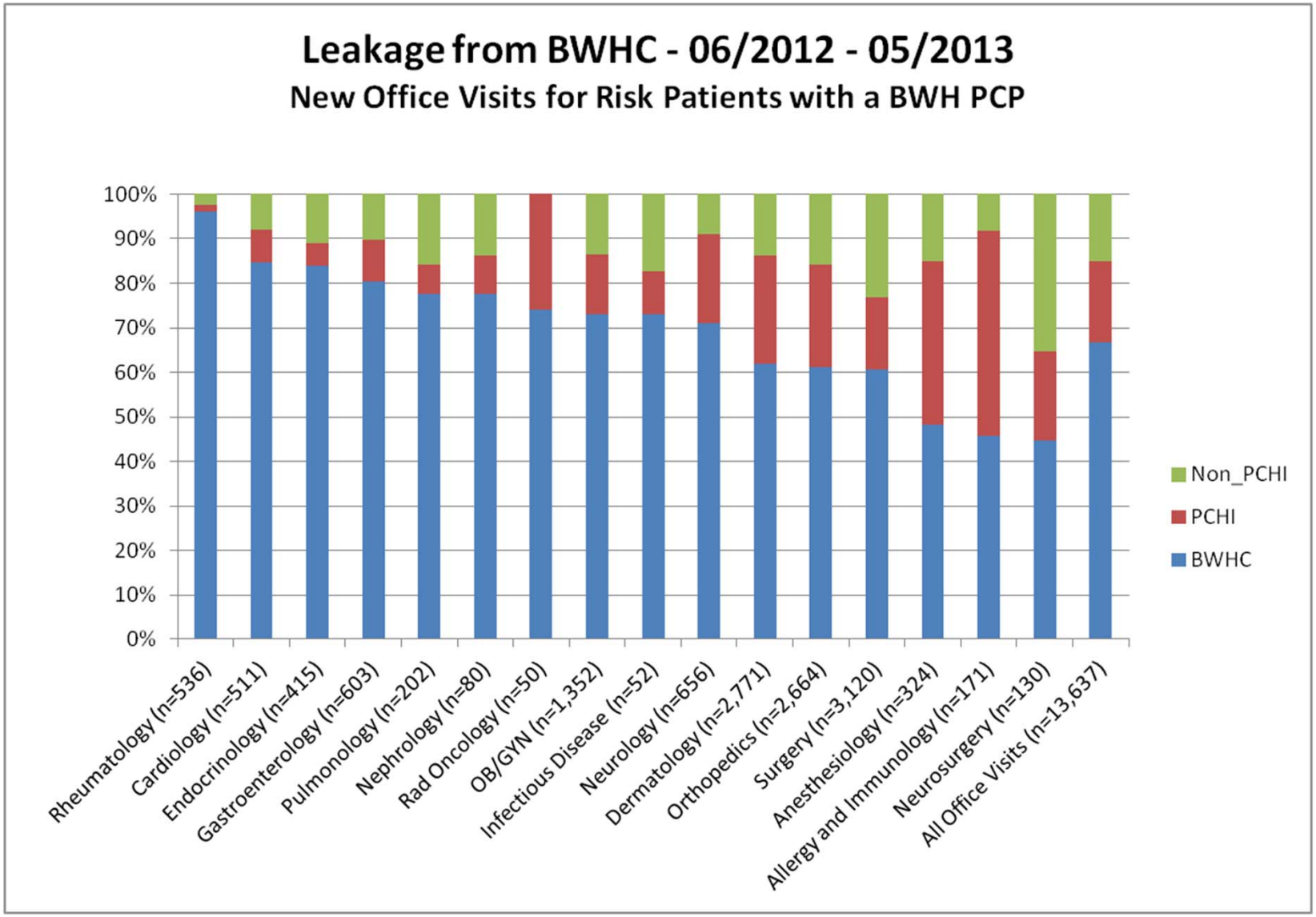
Inequity

- Experienced physicians email trusted colleagues for advice and referrals – while newer physicians may struggle

Lack of Integration

- Substantial visits (30%) to specialists for patients with BWH PCPs land outside of BWH
- Informal curbsides not documented, not reimbursed

Leakage of Patients from BWH



Source: Payer claims. Includes only commercial patients with BCBS, HPHC, THP Jul-2012 to Jun- 2013.

Medical Neighborhood: Goals

More appropriate Referrals

- Create an active system to ensure the right patient sees the right provider in the right time frame
- Reduce unnecessary referrals and diagnostic tests
- Improve access to specialists

Standard Process

- Create an easy, standard process for referral patients to all BWH ambulatory specialties
- Decrease leakage of patients outside of BWH
- Increase referral volume to BWH

Three Paradigms For Referrals

No triage needed

- "I know I need a referral, and I know which physician I want to refer to"

Minimal triage needed

- "I know which specialty I need, but I do not know, or do not have a preference, as to which MD patient sees"

New referral portal

Significant triage needed

- "I know I need help in caring for this patient, but I need help with":
  - Right specialty and right MD
  - Right work-up
  - Right timing of referral

Pre-consult exchanges (through new portal)

What Is Referral Management?

1. Simplify and ***standardize process*** to make referring to BWH easy from internal or external MDs

   → • Increase ***volume***
   • Simplify ***process***

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2. Enable active ***triage*** of referrals (pre-consult exchange)

   → • Improve access
   • Win in ***population management***

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3. ***Track*** referrals to know when they are scheduled, whether patients show-up

   → • Major requirement for PCMH certification
   • Important to CRICO

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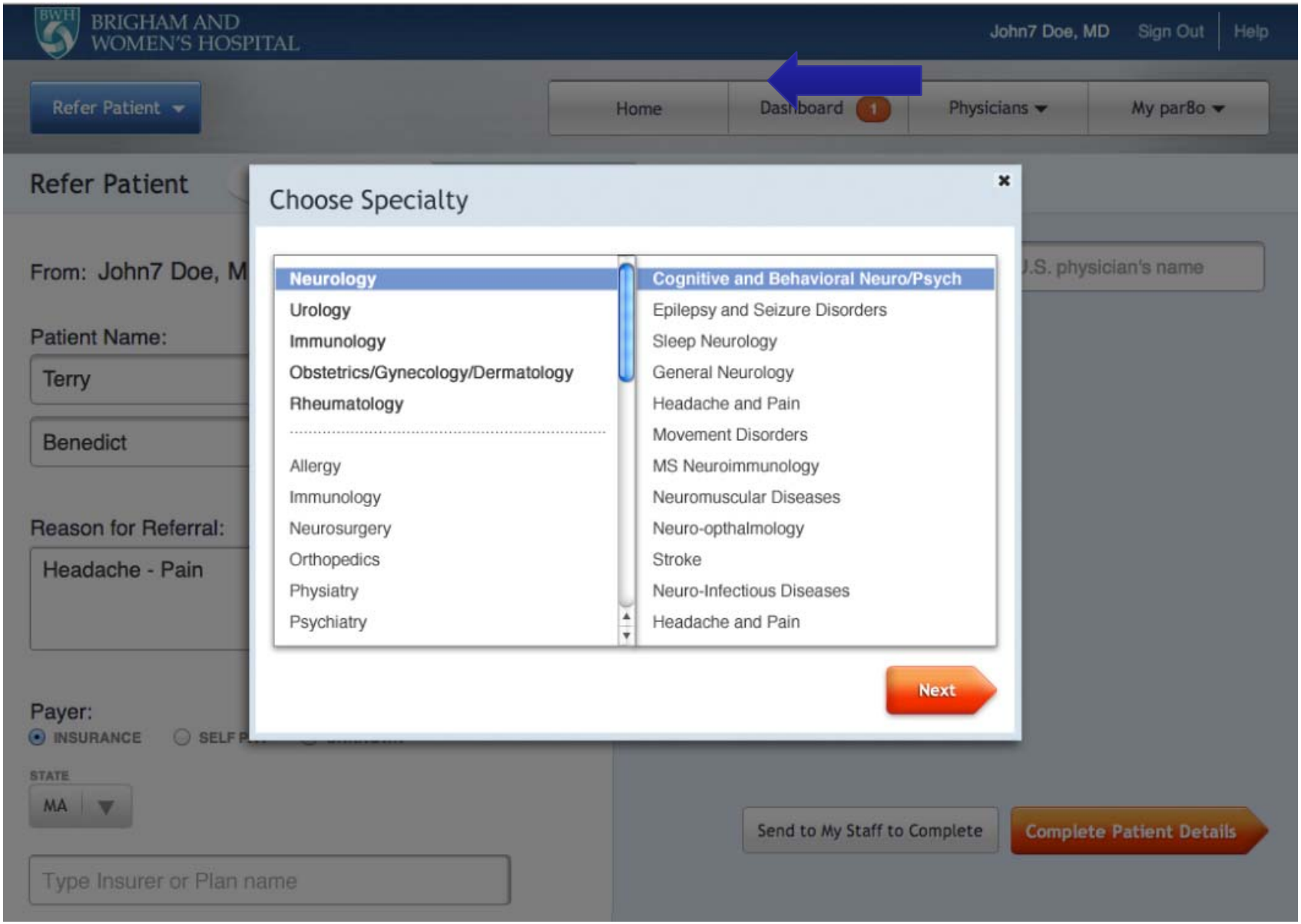
4. ***Measure*** processes and outcomes of referrals

   → • Building incentives
   • Developing and monitoring new programs, growth strategies

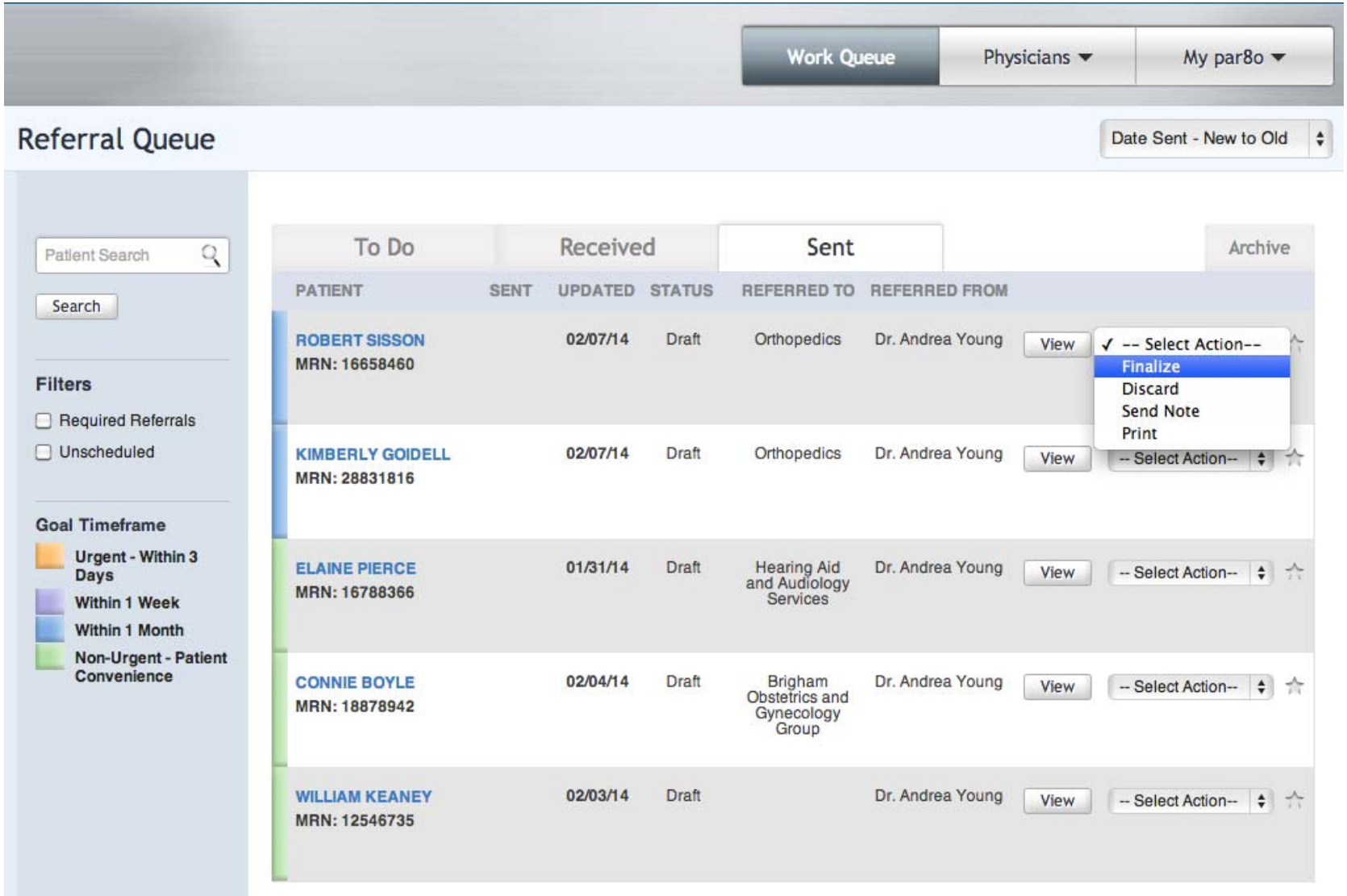
BWHC eReferral

- Cloud-based referral portal allowing “one-stop shopping” for any BWH ambulatory specialist
- Referrals land in a “work queue” for each specialty; specialty staff call patients to book appointments
- Linked to outpatient EMR for patient identification and demographics and single sign-on
- Developed by par8o, LLC, and heavily configured for BWH
- Launched in January 2014 and ramped up over two months
- “Teamcare”: Module within eReferral that facilitates e-consults

Implemented eReferral in January 2014

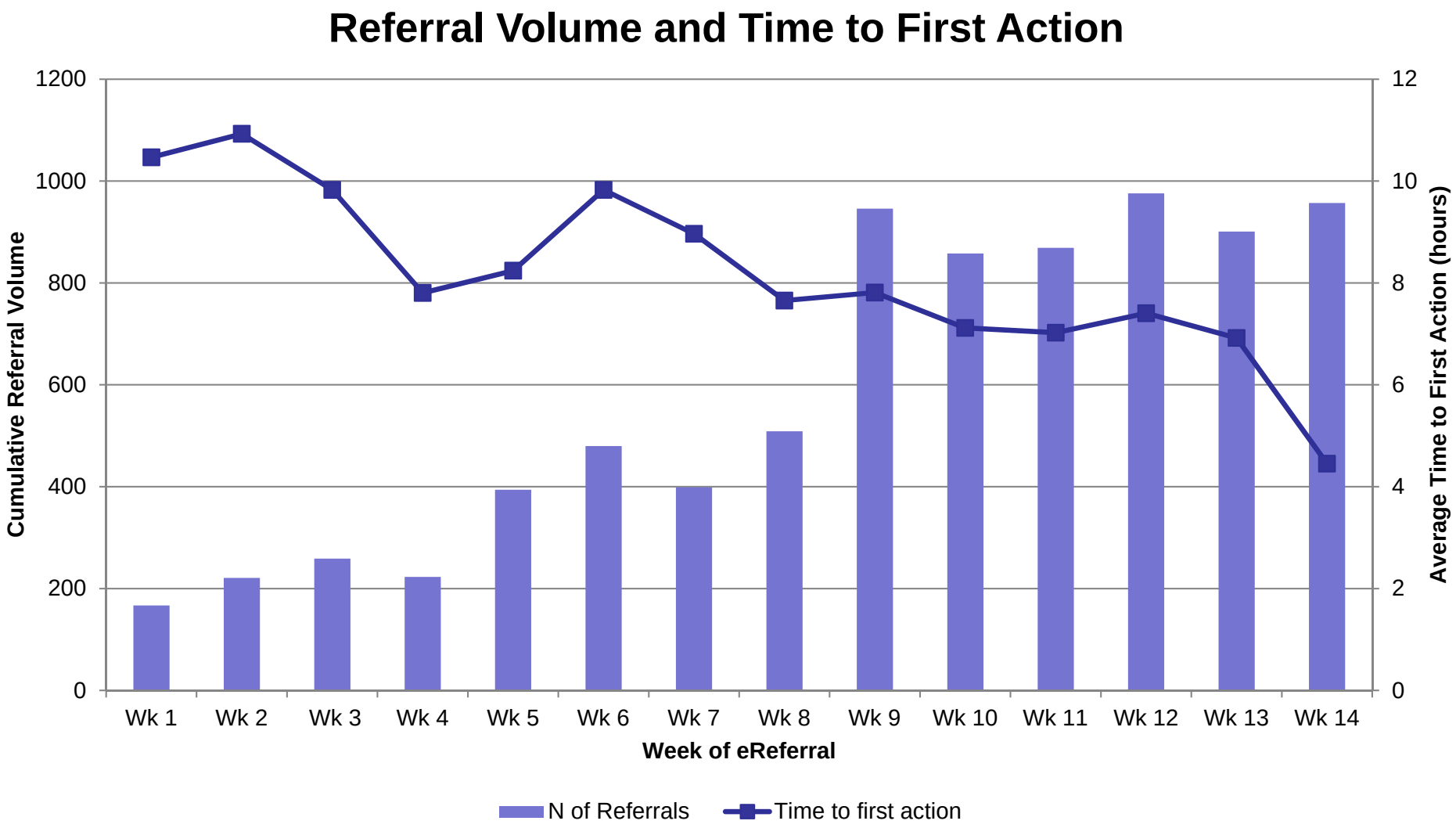


BWHC eReferral Work Queue



Specialties Responding Promptly Even with Rising Volume

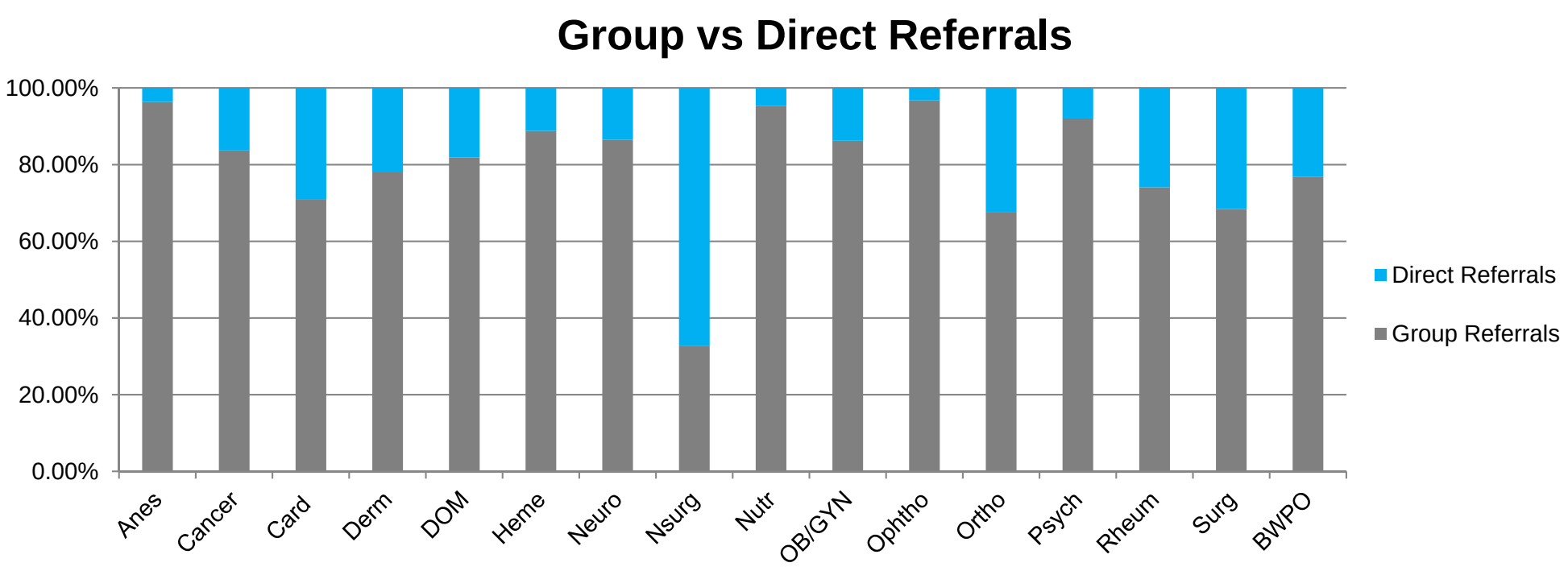
Total referral volume to all BWH specialties, by week (bars)
Time from referral receipt to first phone call to patient (line)



Source: eReferral 1/25/2014- 5/1/2014

PCPs Increasing Share of Undifferentiated Referrals

Actual percentage of referrals to 'group' vs. specific MD, 1/28/2014-5/1/2014

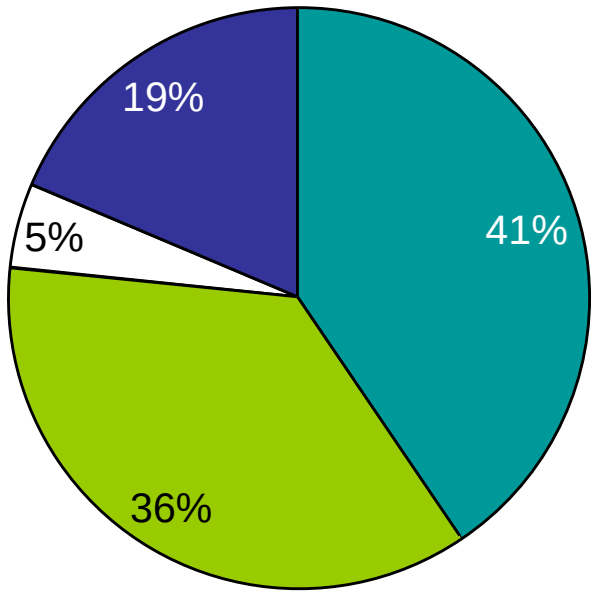


- Survey of BWH PCPs in January 2014 showed 55% would prefer to refer to specific specialist, rather than a group (n=105).

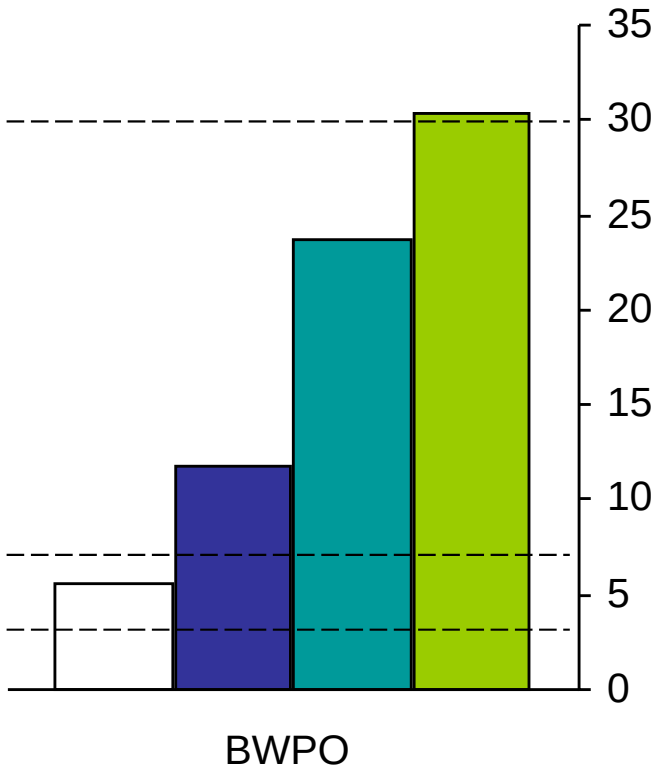
Source: eReferral 1/25/2014-5/1/2014

Time to Appointment Commensurate with Urgency

Urgency of referrals
Percent of total



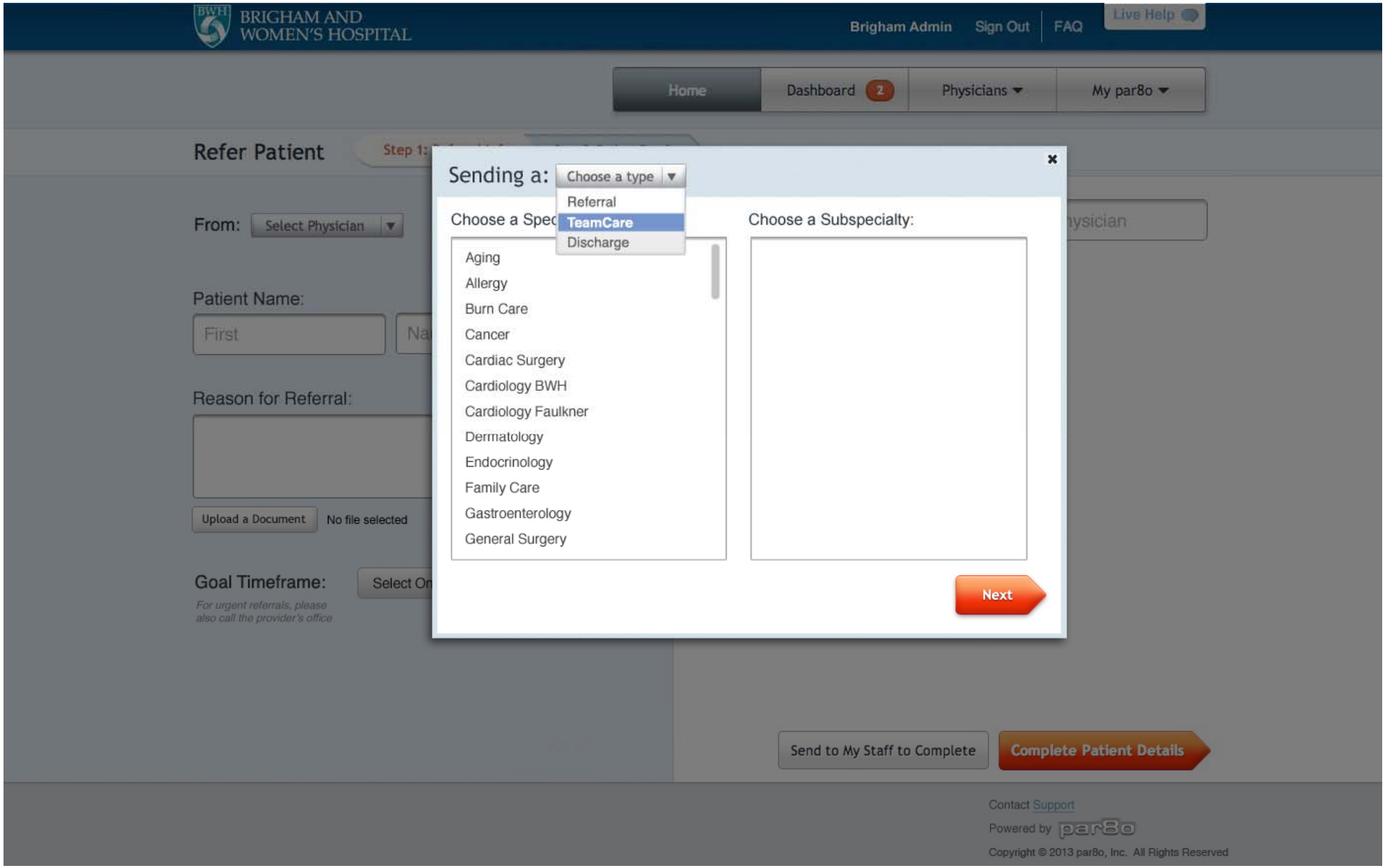
Time from patient contact to scheduled visit
Days



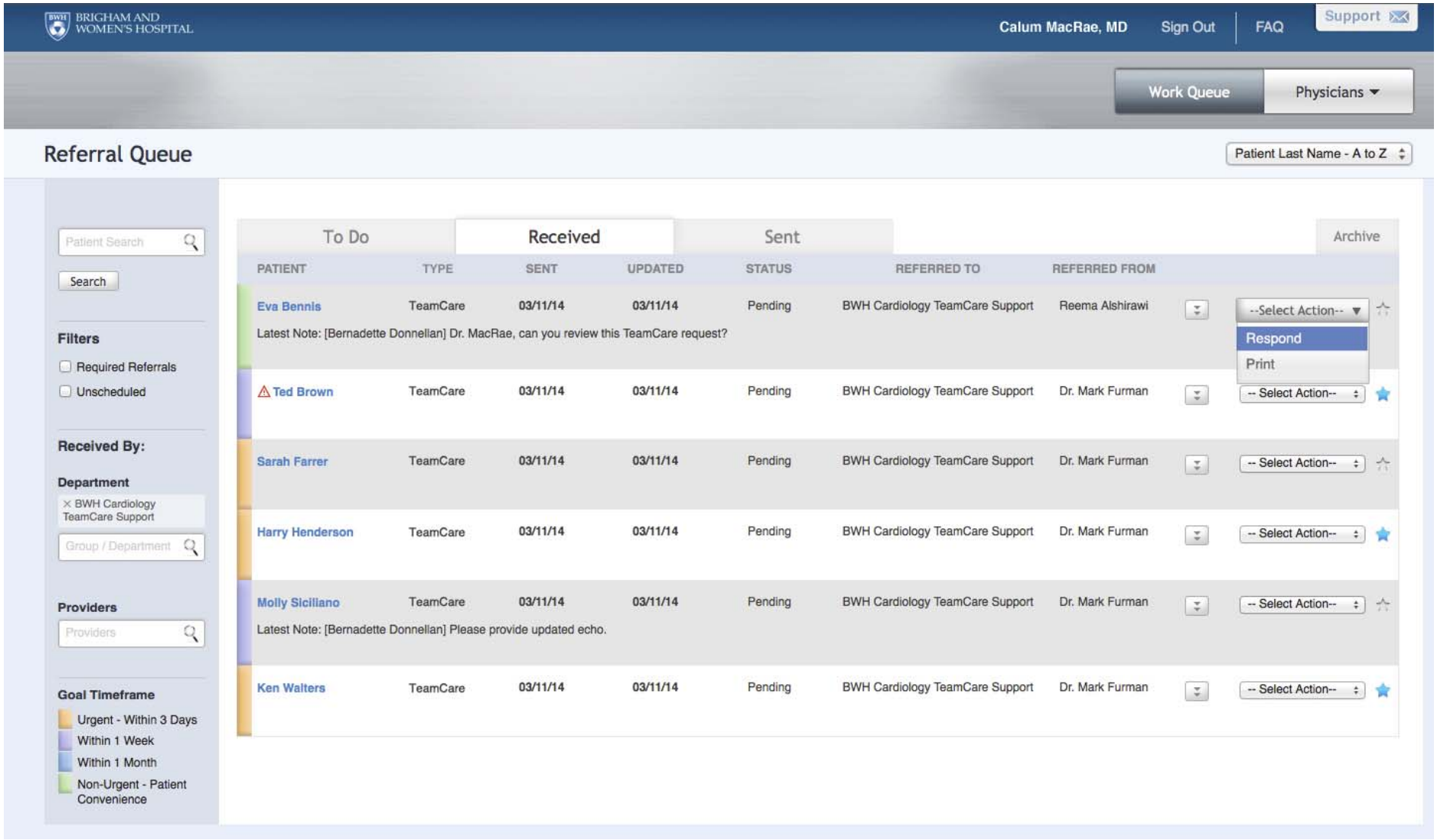
Urgent (<3d) <1 week <1 month Pt convenience

Source: eReferral; 1/25/2014-4/17/2014

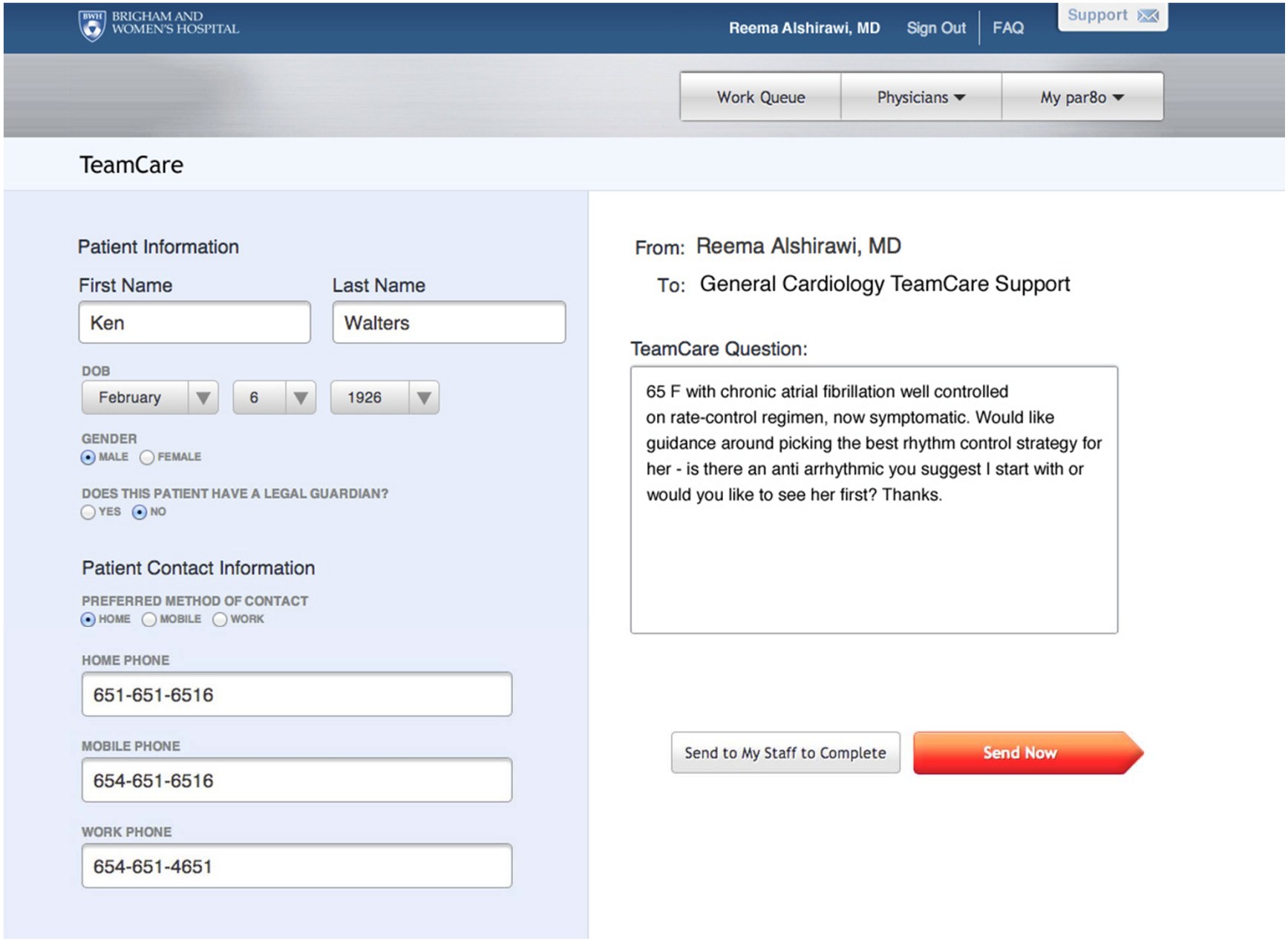
Next Step: TeamCare



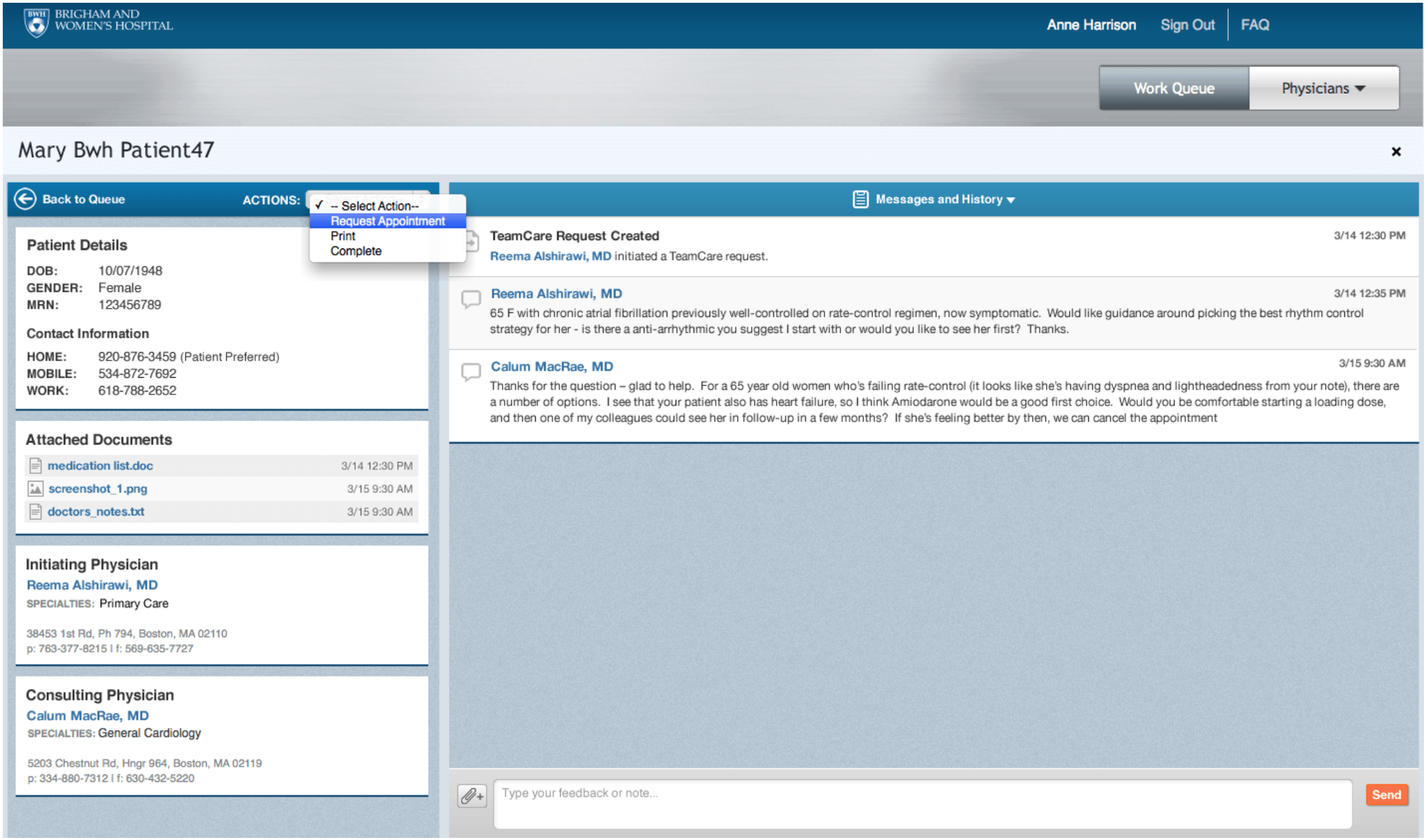
Updated Work Queue



Teamcare Question



Dialogue Between Physicians



Takeaways

- Referrals are a key inflection point in patient care
- Optimizing and standardizing referral processes is a winning strategy in fee-for-service or accountable care
- Technology is important, but workflow is more important
- Data speak: Leakage moved needle at BWH