

UPMC

The Role of IT Leadership in Healthcare

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PghTech Women Network Leadership Breakfast

Thursday January 21, 2010

UPMC's Vision

To provide outstanding patient care to shape tomorrow's health system through clinical innovation, biomedical and health services research and education.

- Create a new economic future for western Pennsylvania
- Export excellence nationally and internationally
- Fuel the development of new businesses that emerge from UPMC's intellectual capital, core capabilities and management expertise.
- Remain steadfastly committed to providing premier health care services to our region and contributing to the community.

UPMC

- UPMC is ranked among the 19 hospitals recognized by U.S. News & World Report as “America’s Best Hospitals.”
- The Pittsburgh region’s largest employer, with 50,000 employees and more than \$7 billion in revenue
- UPMC comprises 20 tertiary, specialty, and community hospitals, 400 outpatient sites and doctors’ offices, and retirement and long-term care facilities
- UPMC provides health insurance (UPMC Health Plan)
- Over 3.5 million unique patients served (accounts)
- Over 30,000 eRecord users

UPMC's Information Technology

\$ 1.2 Billion

Total IT commitment and
investment over the past 5
years

Have we received Value?



The Archives of Internal Medicine Study

Clinical Information Technologies and Inpatient Outcomes January 2009

Background: Despite speculation that clinical information technologies will improve clinical and financial outcomes, few studies have examined this relationship in a large number of hospitals.

Methods: We conducted a cross-sectional study of urban hospitals in Texas using the Clinical Information

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admitted to responding hospitals between December 1, 2005, and May 30, 2006.

Results: We received a sufficient number of responses from 41 of 72 hospitals (58%). For all medical conditions stud-

ied, a 10-point increase in the automation of notes and records was associated with a 15% decrease in the adjusted odds of fatal hospitalizations (0.85; 95% confidence interval, 0.74-0.97). Higher scores in order entry were associated with 9% and 55% decreases in the adjusted odds of death for myocardial infarction and coronary artery bypass graft procedures, respectively. For all causes of hos-

***UPMC has automated
~ 65% of records***

Conclusion: Hospitals with automated notes and records, order entry, and clinical decision support had fewer complications, lower mortality rates, and lower costs.

Arch Intern Med. 2009;169(2):108-114

For all medical conditions studied, increase in automation of medical records related to a decrease in mortality rates

The Archives of Internal Medicine Study

Clinical Information Technologies and Inpatient Outcomes January 2009

Background: Despite speculation that clinical information technologies will improve clinical and financial outcomes, few studies have examined this relationship in a large number of hospitals.

Methods: We examined 72 urban hospitals in the United States. We measured each hospital's level of automation of notes and records, order entry, and clinical decision support with the information technologies. We examined the potential confounding effect of hospital size, the automation of hospital processes, and the rates of hospital-acquired infections, mortality, and length of stay. We analyzed data from 2005, and May 30, 2006.

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ated with lower rates of hospital-acquired infections, orders, order entry, and clinical decision support had lower rates of hospital-acquired infections, fewer complications, lower mortality rates, and lower costs.

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>500,000 Decision Support Rules Fire Every Month

Higher ratings of Decision Support Rule usage associated with a decrease in hospitalizations

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Hospitals with more advanced order entry capability experienced decreases of 9 percent and 55 percent, respectively, in

- Hospitals with more advanced order entry

Methods: We conducted a study of 72 urban hospitals in Tennessee. We assessed the hospital's level of automation of order entry with the information technology. We controlled for potential confounders such as hospital size, location, and automation of hospital processes. We measured rates of inpatient admissions and length of stay for patients admitted to response centers from January 1, 2005, and May 30, 2005.

UPMC placed 21,144,356 eRecord Inpatient Orders Last Year

Results: We received data from 41 of 72 hospitals (58%). For all medical conditions stud-

Arch Intern Med. 2009;169(2):108-114

bypass graft procedures.

New England Journal of Medicine Survey

July 3, 2008

Healthcare IT News

PUBLISHED IN PARTNERSHIP WITH HIMSS
David Blumenthal na

March 20, 2009 | Chip Means, Web Editor



David Blumenthal, MD
WASHINGTON — The Department of Health and Human Services announced today that David Blumenthal will lead the implementation of the Obama Administration's National Health Information Technology Infrastructure. According to an HHS press release, "I am humbled and honored to be part of the effort to harness the power of information technology," said Blumenthal. "As a primary care physician every day for 10 years, I understand the need for a vision of health reform that can be implemented without the help of our most advanced

The NEW ENGLAND JOURNAL of MEDICINE

In his study, only 1.5% of US hospitals have a comprehensive Electronic Record System

Care — A

Sowmya R. Rao,
H., Ashish Jha,
y, Ph.D., Sara
Blumenthal, M.D.,

HIMSS Analytics EMR Adoption Model

**3 UPMC hospitals have
achieved criteria for a Level
6 facility
Children's Hospital has
achieved Level 7 !**

Data from HIMSS AnalyticsSM Database N = 5167/5172 ©2009 HIMSS Analytics

New England Journal of Medicine Survey

March 25, 2009

Results Four percent of physicians reported having an extensive, fully functional electronic-records system, and 13% reported having a basic system. In multivariate

analyses, primary medical centers, electronic health records, and several dimensions were viewed as health records.

Conclusions Physicians improve the quality of care in early 2008, electronic health records, who

Health-information technology improve health care

the practices of physicians in the United States.^{3,4} To date, there have been no definitive national studies that provide reliable estimates of the adoption of electronic health records by U.S. physicians. Recent estimates of such adoption by physicians range from 9 to 29%.^{4,5} These percentages were derived from studies that either had a small number of respondents or incompletely specified definitions of an electronic health record.^{5,6}

***Most recent studies suggest
12.4% of Physician Practice
sites have implemented
UPMC Practices are 75 %
implemented***

What Most Will Face...



UPMC Revenue Cycle Technology Value

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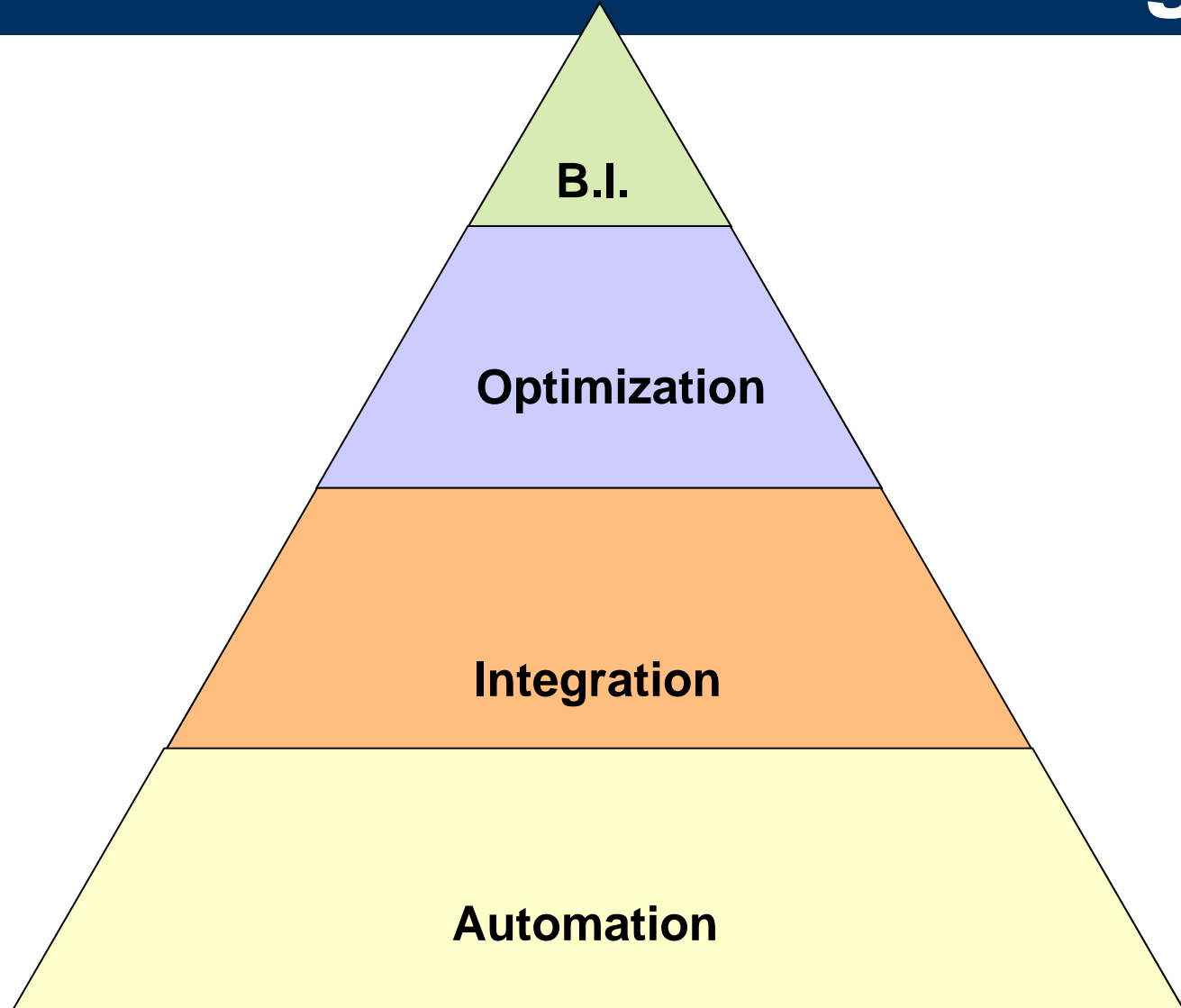
**Physician Services
Revenue Cycle (since
2005) has reduced FTE's
by 18% while increasing
revenue by 65% and
increasing cash
processed per FTE by
102%**

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Outcomes of UPMC Technology

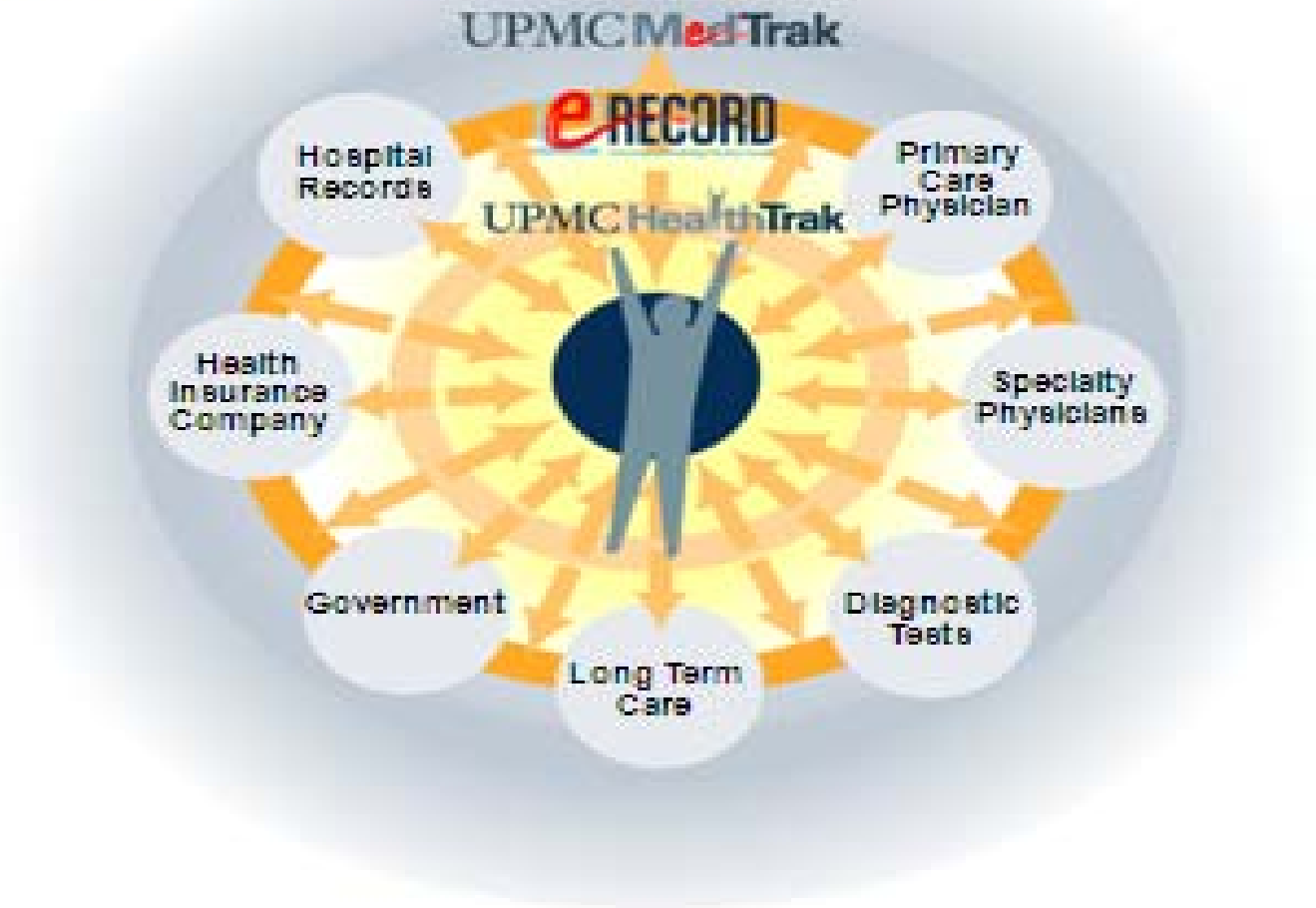


Key Challenges

- Engineering
 - Process
 - Automation
 - Redesign/Optimization
- Organizational
 - Enterprise thinking
 - Shared services and information
 - Standardization
- Culture
 - Change Management
 - Integration
 - Customer Service
 - Differentiation

Consumerism and Healthcare

Empowered Patients



UPMC HealthTrak

- Began rolling out base model in April 2008
- Currently over 27,000 patients
- Implemented in over 65 practice locations
- UPMCHealthTrak is a multidisciplinary collaborative effort supported by finance, clinical, operations, and information technology teams
- The UPMCHealthTrak program is a multidisciplinary collaborative effort governed by a steering committee led by our CFO and CMIO, with guidance from IT, Clinical Operations, Legal, Corporate Communications, and Finance

Levels of HealthTrak

Business HealthTrak

Functions:

- Appointment requests
- Business Office correspondence
- Link to UPMC online bill pay capability
- Update demographic information

Requirements:

- Must be a UPMC patient
- Physician's office must have Cadence (Scheduling) installed
- Does NOT require the office be live with EpicCare

Clinical HealthTrak

Functions:

- All current Business HealthTrak capabilities
- Ability to view portions of patient record
- *Medical advice request
- *Prescription renewal requests (physician must approve)
- Test result release (automated)

Requirements:

- Physician's office must use EpicCare
- Physician must participate in HealthTrak (Epic MyChart)

HealthTrak eVisits

Functions:

- All current Clinical HealthTrak capabilities
- Ability to do an online patient health visit for select conditions including cough, red-eye, back pain, and more (will require physician time)

Requirements:

- Must be a Clinical HealthTrak patient
- Physician must participate in eVisits

UPMC HealthTrak Features

- Multiple Enrollment Options
- Review Personal Health Information
(*Current Health Issues*)
- Release of Test Results
(*Lab & Interpretive*)
- Medical Advice Request
- Medication Renewal Request
- View Visit List & Information
- Direct Scheduling
- Appointment Requests
- Appointment Cancelations
- Submit Demographic Changes
- Submit Customer Service Requests
- Submit Patient Entered Flowsheets

The screenshot displays the UPMC HealthTrak user interface. At the top, the logo 'UPMC HealthTrak' is visible. A navigation bar includes links for 'Technical Help', 'Change E-mail', 'Home', and 'Log Out'. A left-hand sidebar contains a vertical menu with buttons for 'Administrative', 'Appointments', 'Billing & Insurance', 'Links', 'Message Center', 'My Medical Record', 'Preferences', and 'Tracking Tools'. The main content area features a 'You Might Want To...' section with a circular icon and a text box: 'Review the preventive care services we recommend you schedule soon.' Below this are three rectangular boxes with icons and text: 'Send a message to your doctor's office.', 'Schedule an appointment.', and 'View your health summary.' A 'News for You' section follows, containing two paragraphs of text. The first paragraph describes the 'Emmi' program, and the second provides information on receiving alerts and spam filters. At the bottom of the page, there are small links for 'Home', 'Site Map', 'Terms & Conditions', and 'Log Out', along with a copyright notice: 'MyChart licensed from Epic Systems Corporation, © 1999-2006. Patents pending.'

eVisits Project

- Evaluated eVisit products available on the market
- Decided to pursue an integrated EMR-based solution
- Co-designed eVisits with a collaborative effort between Epic (EMR vendor) and UPMC physicians

Current Symptoms for eVisits

Currently there are 7 possible eVisit symptoms to choose from:

- Back Pain
- Cough
- Diarrhea
- Red Eye
- Sinus/ Cold Symptoms
- Urinary Symptoms
- Vaginal Irritation/ Discharge

In addition, there is an “Other” category if the patient’s symptoms are not among the 7 listed.

The screenshot shows the UPMC HealthTrak eVisit interface. The header includes the UPMC HealthTrak logo and navigation links for Technical Help, Change E-mail, Home, and Log Out. A sidebar on the left contains menu items: Administrative, Appointments, Billing & Insurance, eVisit (with sub-items 'What is an eVisit?' and 'Submit an eVisit'), Links, Message Center, My Medical Record, Preferences, and Tracking Tools. The main content area is titled 'Reason For eVisit' and features a doctor icon. It contains instructions to select a reason for the eVisit and a list of radio button options: Back pain, Cough, Diarrhea, Red eye, Sinus/cold symptoms, Urinary symptoms (which is selected), Vaginal irritation/discharge, and Other. Below this is a section for selecting a pharmacy, with a dropdown menu currently showing 'Giant Eagle Parkway Center Mall' and an empty text input field for additional pharmacy details. 'Continue' and 'Cancel' buttons are at the bottom of the form. The footer includes links for Home, Site Map, Terms & Conditions, and Log Out, along with a copyright notice for MyChart.

Patient Questionnaire - Urinary

If the patient chooses one of the 7 symptoms, a predefined questionnaire appears on the next screen. The patient must answer all the questions. Depending on the question the answers can be:

- Single answer
- Multiple answer
- Free text field

The questions may also have branching logic.

The screenshot shows the UPMC HealthTrak interface for an eVisit. The page title is "eVisit for Urinary symptoms". The left sidebar contains navigation links: Administrative, Appointments, Billing & Insurance, eVisit (selected), Links, Message Center, My Medical Record, Preferences, and Tracking Tools. The main content area includes instructions: "Please answer all the questions and click the Continue button. Clicking the Back button will cause you to lose your answers on this page." Below this are several questions with radio button options:

- * Indicates a required field.
- * Are you able to pass urine?
 - Yes, I can pass urine
 - Yes, I can pass urine with difficulty
 - No, I cannot pass urine
- * How long have you had pain or difficulty passing urine?
 - Two days or less
 - More than two days but less than one week
 - More than one week
- * Do you have a fever?
 - Yes, I have a little fever (lower than 101 degrees)
 - Yes, I have a high fever (101 degrees or higher)
 - No, I do not have fever
 - I don't know
- * Do you have any of the following?
 - I have back pain with this illness
 - I have belly pain with this illness
 - I have been vomiting
 - I have diarrhea
 - I have none of these problems

At the bottom, there is a "Free text field" for additional comments and buttons for "- Back", "Continue >", and "Cancel". A footer note states: "You will have a chance to look at your answers before submitting your eVisit."

eVisit Statistics

- eVisit rollout began with a complimentary pilot:
 - 420 total eVisit requests were submitted from Aug 1, 2008 to Mar 31, 2009
- Charging for eVisits began on April 1, 2009:
 - 155 total eVisit requests were submitted from Apr 1, 2009 to Aug 1, 2009
- Pilot involved four UPMC primary care practices
- Most patients have ongoing health issues:
average 4.76 active problems on the patients' problem list

eVisit Statistics

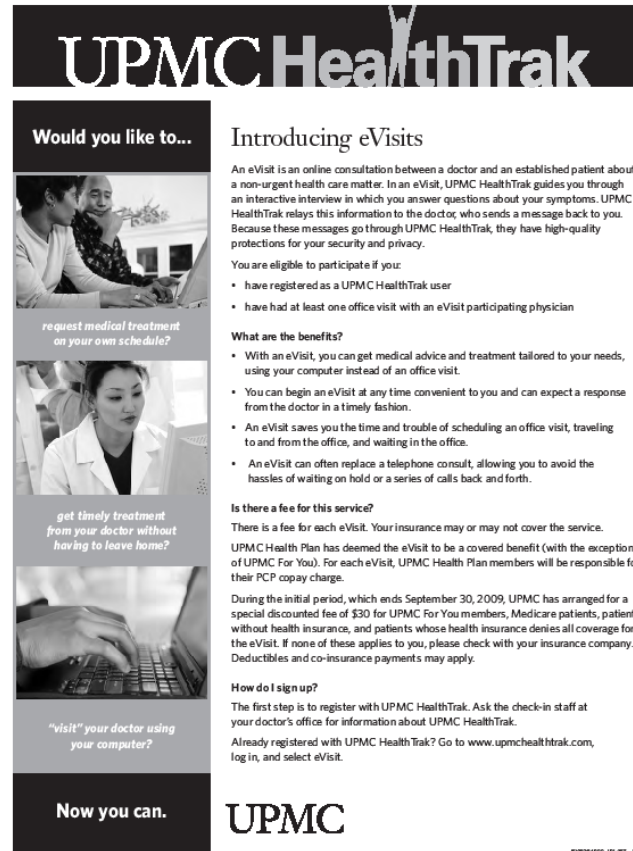
- Patient overview
 - Requests: 25% male, 75% female

Age Breakdown	Count
18-24	7%
25-34	17%
35-44	25%
45-54	24%
55-64	20%
65+	6%

Condition	Count
Sinus/cold symptoms	196
Back Pain	29
Cough	43
Diarrhea	16
Urinary symptoms	36
Red Eye	10
Vaginal irritation/discharge	15
Other	228

eVisit Marketing

- Only form of marketing for the pilot was a patient brochure:



The brochure features a dark header with the UPMC HealthTrak logo. Below the header, there are three vertical panels on the left, each with a small image and a question. The first panel shows a doctor and a patient looking at a laptop, with the question 'Would you like to... request medical treatment on your own schedule?'. The second panel shows a doctor at a computer, with the question 'get timely treatment from your doctor without having to leave home?'. The third panel shows hands typing on a laptop keyboard, with the question 'visit your doctor using your computer?'. Below these panels is a dark box with the text 'Now you can.' and the UPMC logo. To the right of the panels is the main text area, which includes the title 'Introducing eVisits', a paragraph describing the service, a list of eligibility criteria, a list of benefits, a section on fees, and a section on how to sign up.

UPMC HealthTrak

Would you like to...

request medical treatment on your own schedule?

get timely treatment from your doctor without having to leave home?

visit your doctor using your computer?

Now you can.

Introducing eVisits

An eVisit is an online consultation between a doctor and an established patient about a non-urgent health care matter. In an eVisit, UPMC HealthTrak guides you through an interactive interview in which you answer questions about your symptoms. UPMC HealthTrak relays this information to the doctor, who sends a message back to you. Because these messages go through UPMC HealthTrak, they have high-quality protections for your security and privacy.

You are eligible to participate if you:

- have registered as a UPMC HealthTrak user
- have had at least one office visit with an eVisit participating physician

What are the benefits?

- With an eVisit, you can get medical advice and treatment tailored to your needs, using your computer instead of an office visit.
- You can begin an eVisit at any time convenient to you and can expect a response from the doctor in a timely fashion.
- An eVisit saves you the time and trouble of scheduling an office visit, traveling to and from the office, and waiting in the office.
- An eVisit can often replace a telephone consult, allowing you to avoid the hassles of waiting on hold or a series of calls back and forth.

Is there a fee for this service?

There is a fee for each eVisit. Your insurance may or may not cover the service. UPMC Health Plan has deemed the eVisit to be a covered benefit (with the exception of UPMC For You). For each eVisit, UPMC Health Plan members will be responsible for their PCP copay charge.

During the initial period, which ends September 30, 2009, UPMC has arranged for a special discounted fee of \$30 for UPMC For You members, Medicare patients, patients without health insurance, and patients whose health insurance denies all coverage for the eVisit. If none of these applies to you, please check with your insurance company. Deductibles and co-insurance payments may apply.

How do I sign up?

The first step is to register with UPMC HealthTrak. Ask the check-in staff at your doctor's office for information about UPMC HealthTrak.

Already registered with UPMC HealthTrak? Go to www.upmchealthtrak.com, log in, and select eVisit.

UPMC

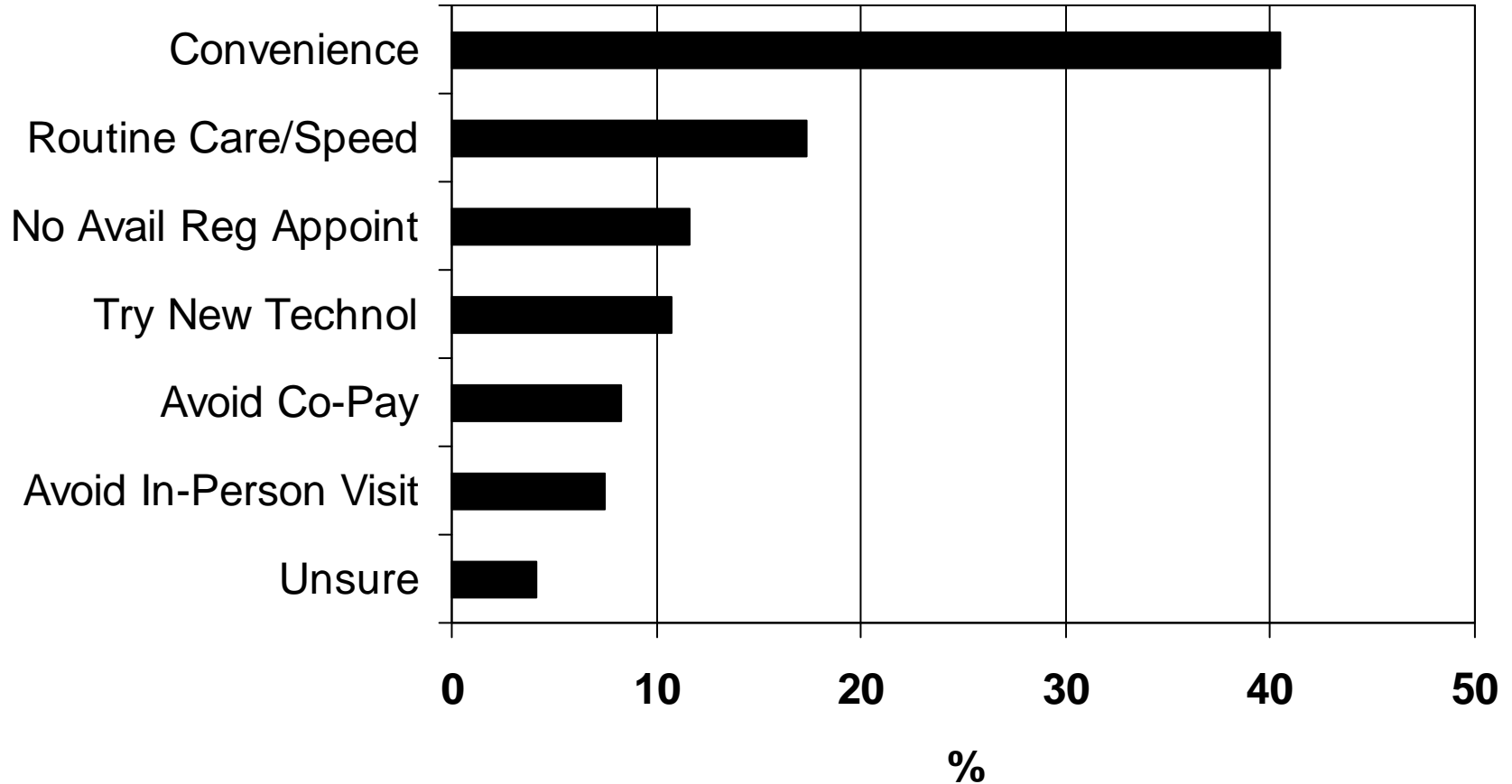
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eVisit Patient Study

- Partnered with University of Pittsburgh to conduct a telephone survey
- Surveyed 156 patients, response rate of 82%
 - Female 71%, male 29%
 - Age:

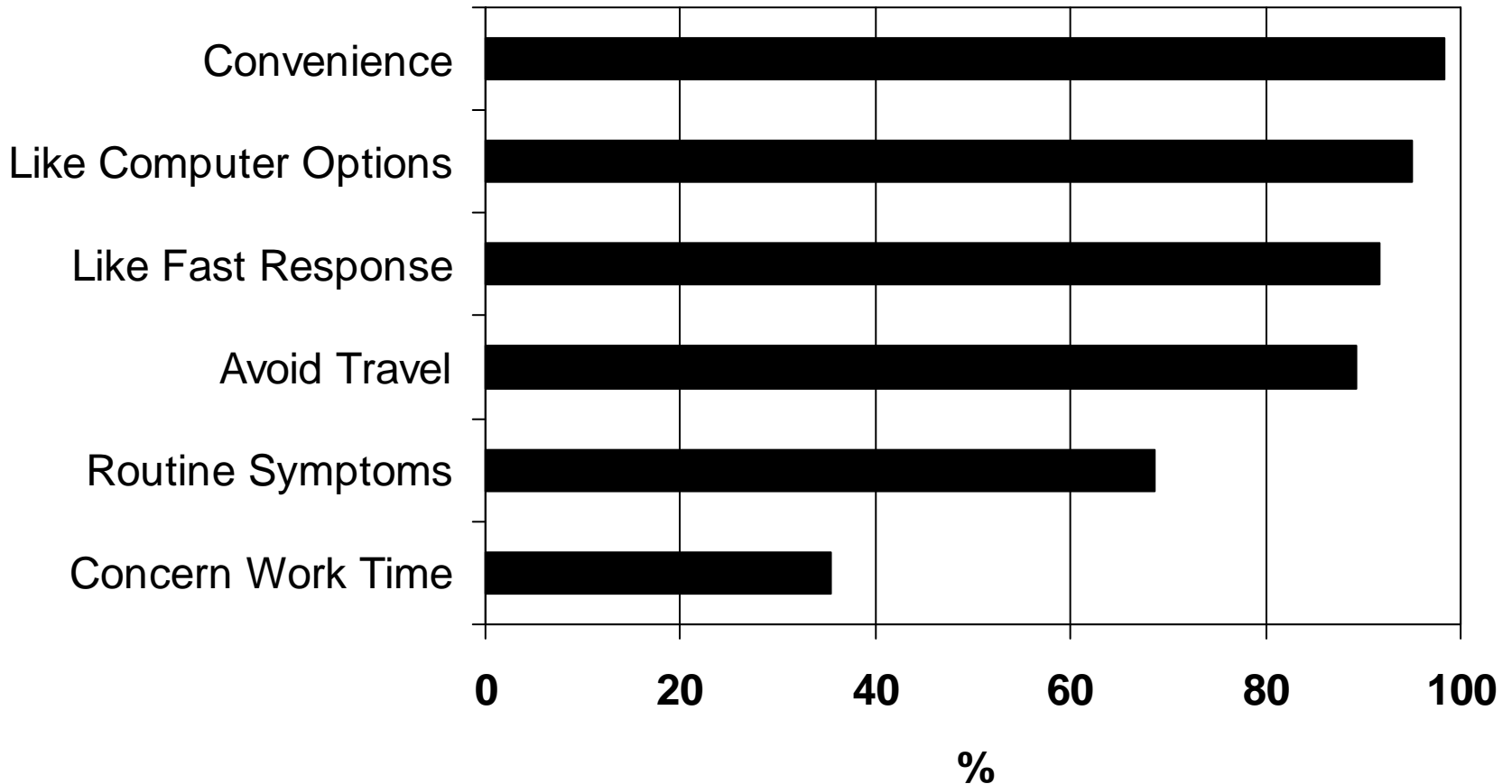
18-39	32.5%
40-49	30.8%
50-59	24.8%
60+	12.0%
- College graduate: 48.7%
- Not currently working: 14%
- Median number of physician visits per year: 3

Primary Reason for eVisit: Open-Ended Responses



Coding of 121 responses; most salient reason

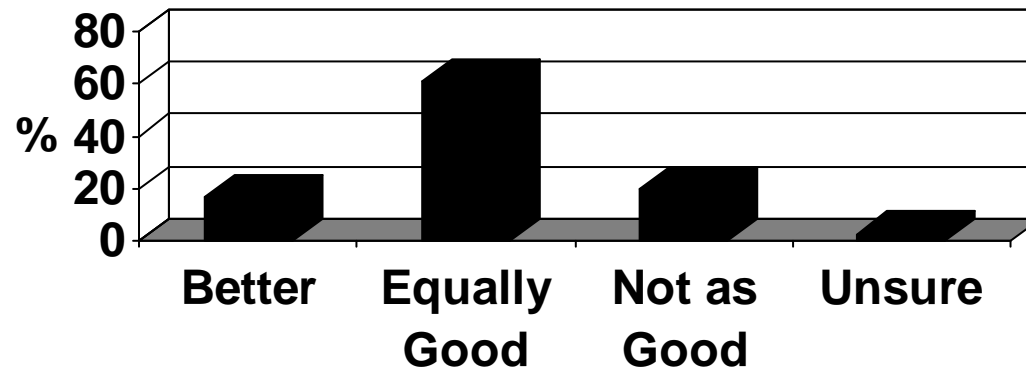
Reasons for eVisit: Structured Responses



121 responses

Satisfaction with eVisit

- Questions/concerns not answered: 11.6%
- Would make another eVisit: 95%
- Compared to in-person visit:



Patients and eVisits

- Preserving access to their primary care physician
- Affordable
- Convenient care
- Efficient
- Reduces absenteeism
- Can enter their own vital signs
- Improves the quality of care

Lessons Learned

- Physician and office buy-in is a must
- Address Legal/Compliance issues to ensure billing coding compliance
- Address financial and billing office concerns
- Establish consistent eVisit coverage times and support (goal: 7 days/week coverage)
- Continually evaluate your eVisit program for data to support approaching payors for eVisit reimbursement
- Expect a learning curve for eVisits
- eVisits must be promoted... if you build it they may not come

Technology Challenges

- Platforms
- Suppliers
- Data
- Integration
- User Adoption
- IT Staffing

External Constituencies, Business Services supported with Consolidating Technology

Constituencies :

Public:

- Consumers
- UPMC Patients
- Non-UPMC Patients

Providers:

- UPMC Employed Providers
- Referring Providers
- Institutional Providers

Others:

- Patient Transportation
- Companies
- Insurance Companies
- Law Firms
- Others

Access Methods

- External phones
- Internal network/ phones
- eMail
- Portals
 - MedTrak
 - HealthTrak
 - InfoNet
 - UPMC.com
 - Others

Office of Physician Relations (OPR) / Integrated Medical Call Center (IMCC)

Services

- Automated Notification of Clinical and Administrative events
- Data Quality maintenance – contacts/ preferences / relationships
- Patient transfers
- Customized Answering Services
- OnCall Schedules
- Paging services
- 1st Level Support for Portals
- UPMC Support for Emergency planning and drills
- On Demand Medical Record Transfer

Consolidating' Technology

Applications ions by Functions:

Contact Management

- Contact Synchronization with Updater
- Web Update for Contact Information
- Administrative Tools

Automated Notification

- Message Delivery using IBM MQ products and custom code
- 40+ Message Types
- Multiple Delivery Channels: Interactive Voice, eMail, Fax, Paging

Portal Delivery

- MedTrak with OnCall Schedules, Physician Training, Find a PCP
- PrepLink with Emergency Preparedness solutions

Call Center Solutions

- hCRM for Answering Service, Emergency Call out, 1st Level support for portals, etc.

Databases:

Contact Data Store (EPCD13)

Physician Training

MS CRM

Content Management

OnCall

WebEOC – Extended use

Pt / Pr Relationship Data Store (CUPID)

Security Infrastructure and Portal Solutions:

- ~ Identity and Access Management for UPMC
- ~ CAI Framework for secure Internet access
- ~ WebShpere
- ~ IBM security solutions
- ~ Microsoft AD

UPMC Applications and Data

- ~ PeopleSoft
- ~ MediPac
- ~ Epic
- ~ Invision
- ~ MARS
- ~ Clinical Application
- ~ Departmental Applications

UPMC Infrastructure

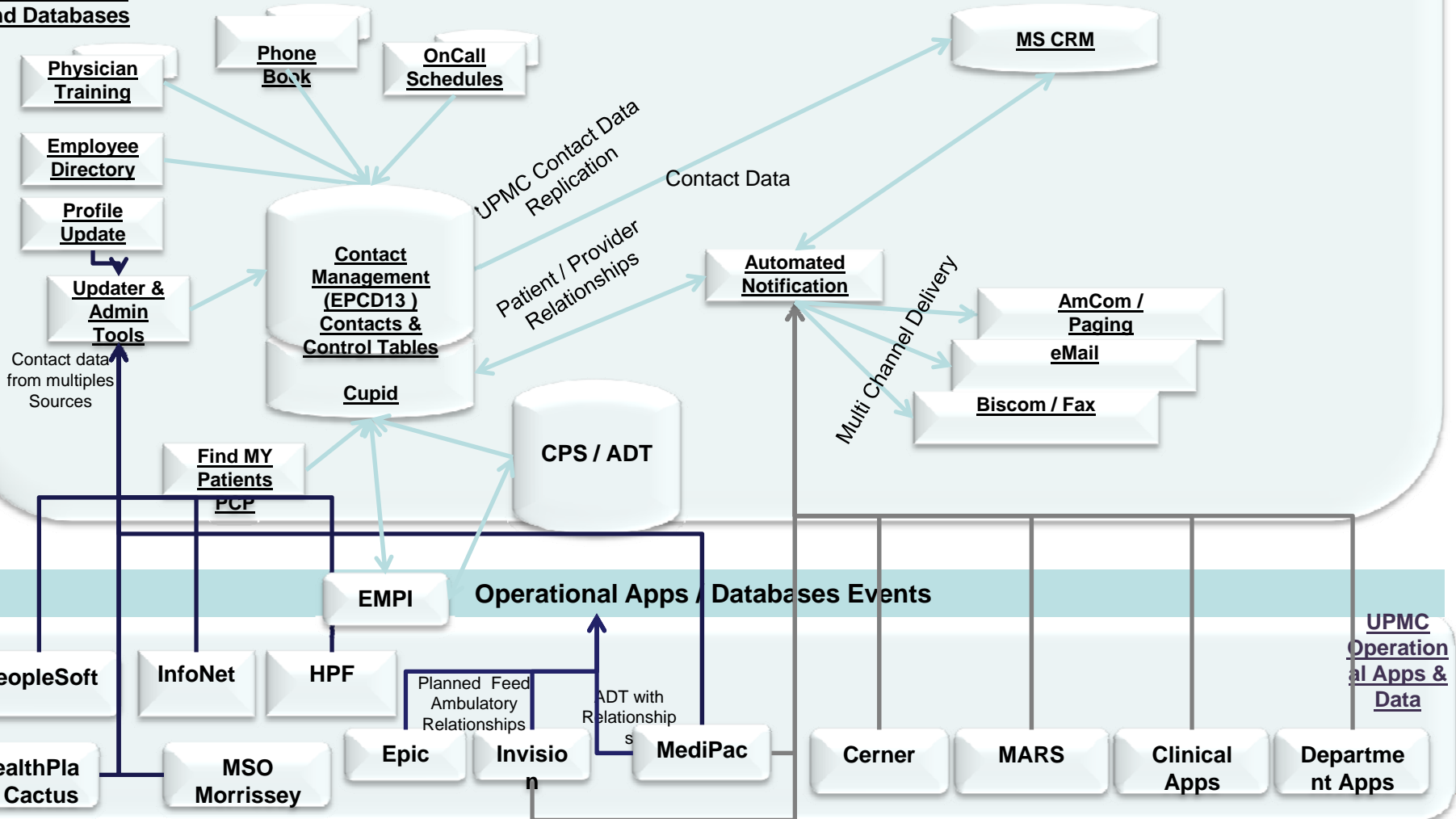
- ~ Network
- ~ Hardware / Software
- ~ Telephones
- ~ Facilities
- ~ Personnel

Consolidating Technology for Operational Applications

MedTrak Portal
(Infrastructure - CAI Framework / MS .NET)

Call Center
hCRM (MS CRM / CCF) Call Center apps: Emergency Call Out, 1st Level support for portals, etc.

MedTrak Apps and Databases



Leadership Implications

- Strategic/Organizational
 - Disruptive Nature of Consumerism in Traditional Health Care
 - Place in Market Strategies
 - New Lines of Business
- Operational
 - eCommerce in health care challenges policy (e.g. proxy)
 - Challenges existing service models
- Individual
 - Provider (paternalistic versus patient centered models)
 - Consumer (likeness and differences to other eServices models)