



Individual Engagement through Technology

Musings on Connected Health

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U.S. Healthcare “System”

- Fragmented
- Expensive
 - ~ US\$2 trillion = 16% of GDP
 - Key stakeholders don't care about costs!
- Unacceptable quality
 - Errors 8th leading cause of death
 - Recommended care 50% of time
 - 37th best in the world!
 - No incentives to provide quality care!
- Inefficient

Ways to “Fix” the System

- The system
- The practitioners
- The patients

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Ways to “Fix” the System

- The system
- The practitioners
- The patients

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E-empowered Consumers

- 80% of online adults
- Rising over time
- Each day, more people search for health information than see a physician!
- More than half acted on information

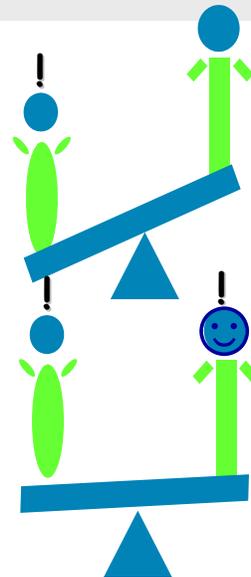
Source: www.pewinternet.org

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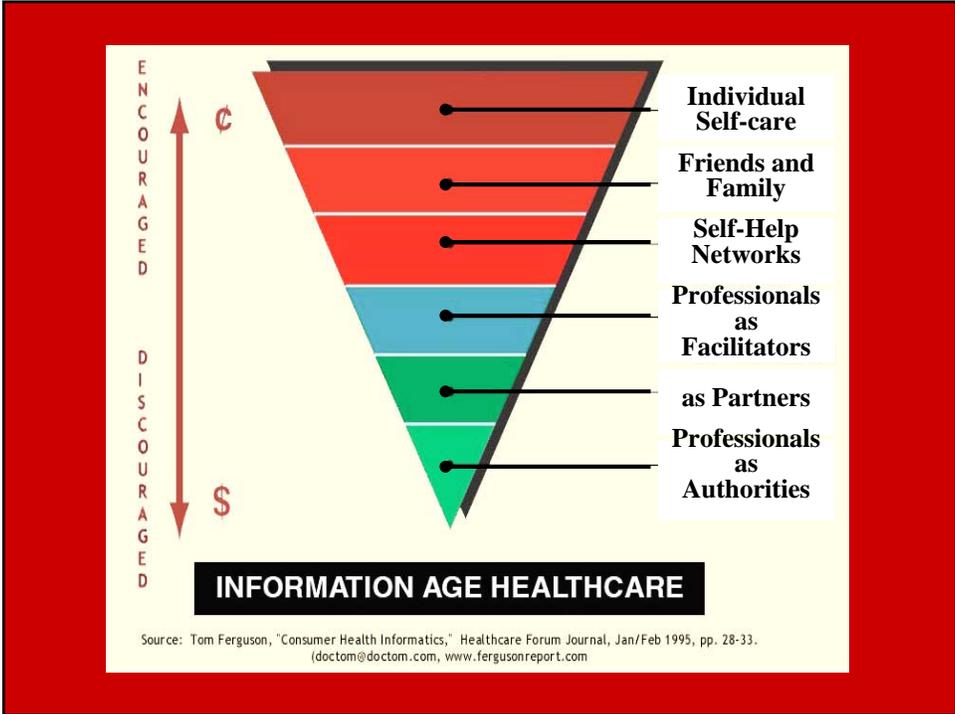
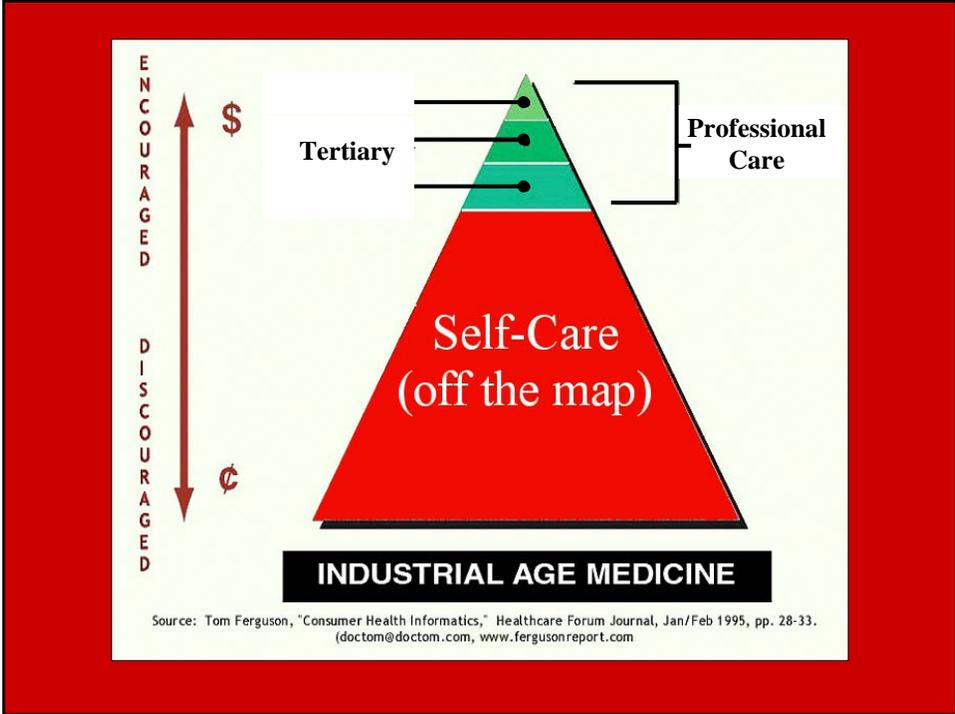
Shifting Paradigm?

- Information asymmetry
 - Physician as oracle
 - Comfortable
 - A burden?
- Information symmetry
 - Physician as partner
 - Threatening vs. liberating
 - Physician as healer



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Non Sequitur by Wiley Miller

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Cartoon: "Non Sequitur" by Wiley Miller.
Two food vendors with carts: one labeled "Health" has no customers, and the other labeled "Shmealth (Deep Fried Stuff)" has a long line of enthusiastic buyers.

- *How might we engage patients in their health?*
- *What benefits might arise from that?*

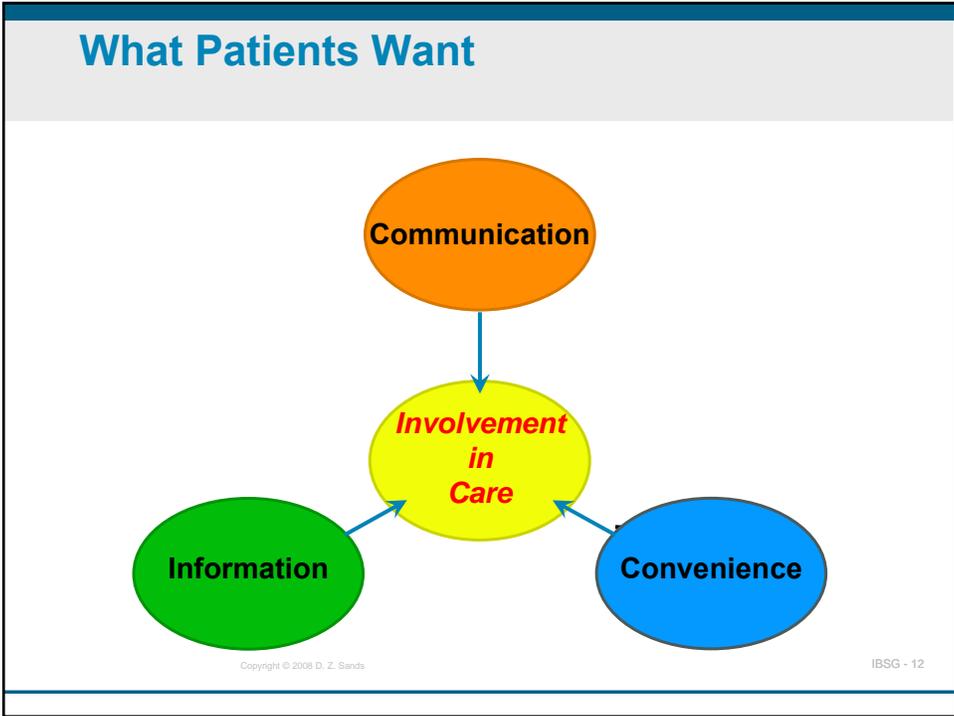
Personal Health Record

"An electronic application through which **individuals can access, manage, and share their health information** in a secure and confidential environment. It allows people to access and coordinate their lifelong health information and make appropriate parts of it available to those who need it."

Connecting for Health 2004

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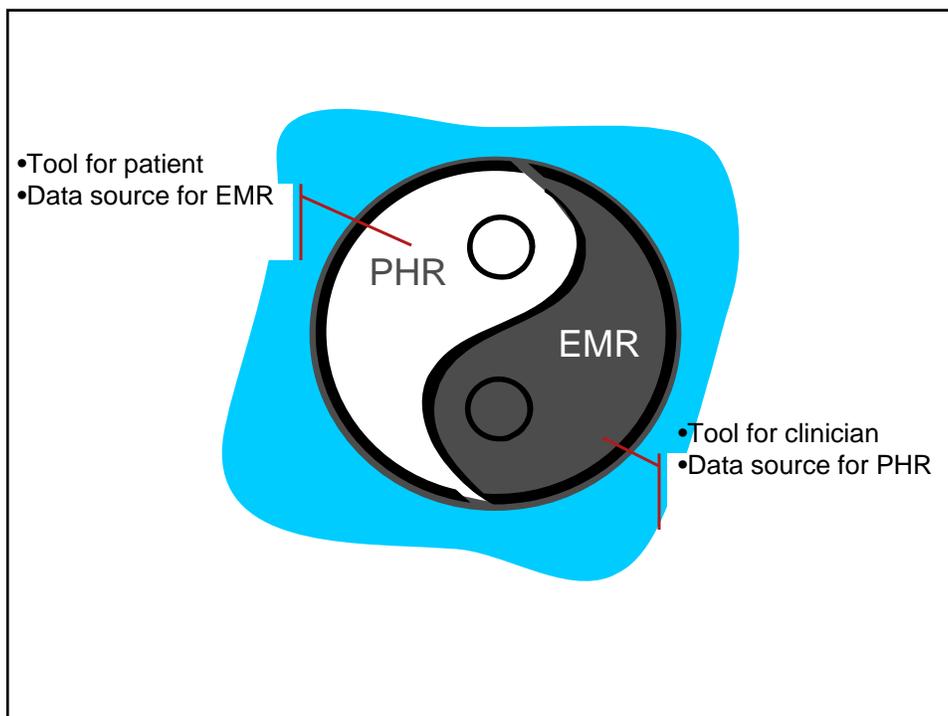
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Electronic Health Record

“An Electronic Health Record (EHR) is a *medical record* or any other information relating to the past, present or future physical and mental health, or condition of a patient which resides in computers which capture, transmit, receive, store, retrieve, link, and manipulate multimedia data *for the primary purpose of providing health care and health-related services.*”

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PHR Benefits to Patient

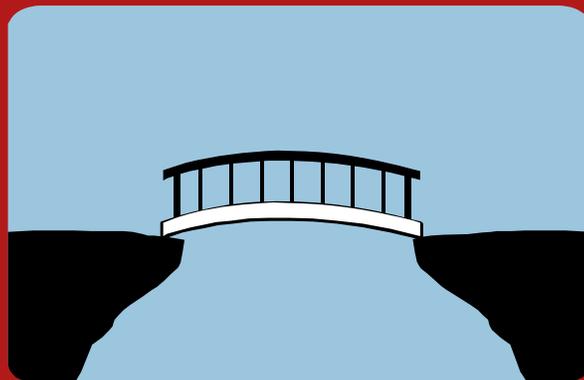
- Better medication adherence
- More engagement in health → better health outcomes
 - Is this true for broad populations?
- Health management tools
- Asynchronous secure e-communication
- Facilitated enrollment in clinical trials
- Disease management w/ patient involvement

PHR Benefits to Clinician

- Better clinical database
- Transferability of health records
- Asynchronous e-communication

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PHRs May Bridge the Gaps

PHR Benefits to Health System

- Bridging the gaps among info silos
- Safety
- Public health
 - Advisories
 - Surveillance
- Clinical trials recruitment
- Clinical research
- Reduced testing redundancy

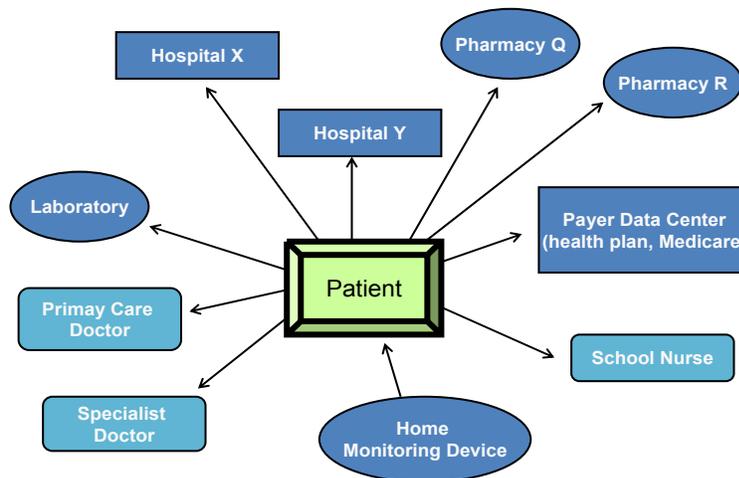
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copyright restrictions.
Cartoon: two mice looking up
for their hole-in-the-wall
home at two humans;
one mice says "Oh no! We've got people!"

Are PHRs *data sources* for health information exchange or are PHRs the *vehicles* for health information exchange?

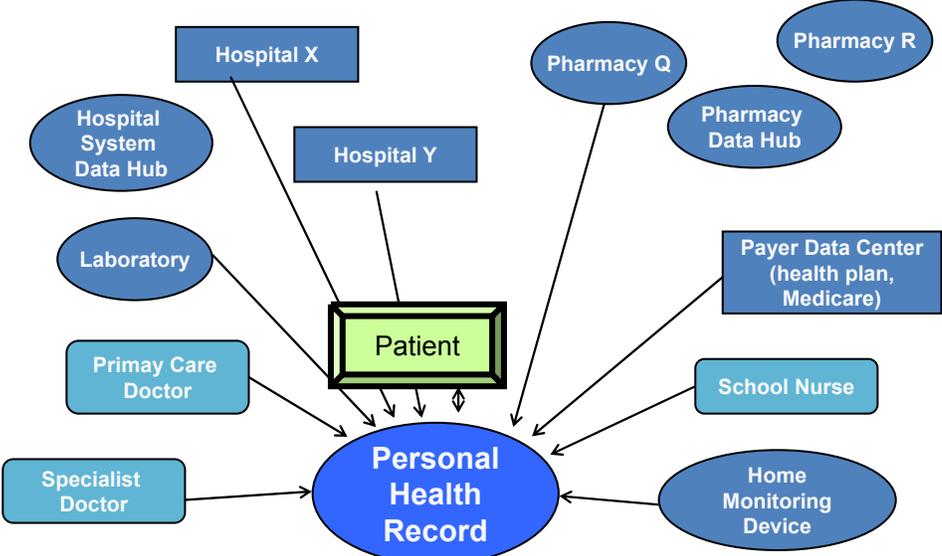
Retrieving your health information



Source: Markle Foundation

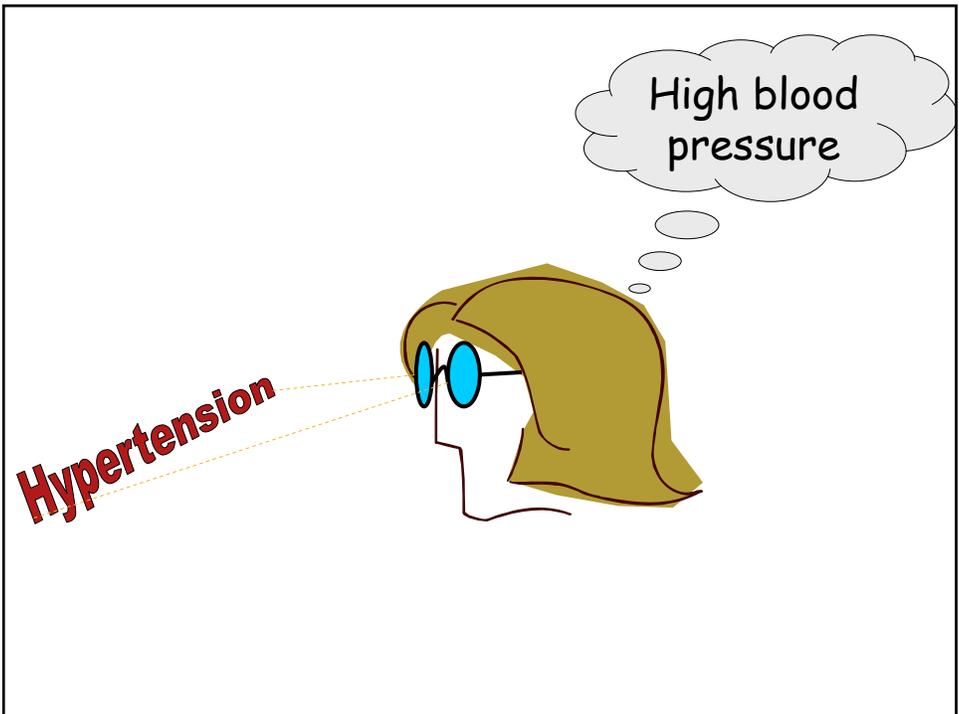
Figure by MIT OpenCourseWare.

The person as an information hub



Source: Markle Foundation

Figure by MIT OpenCourseWare.



Facilitating Patient Understanding



The patient's hypertension is poorly controlled...

Context-sensitive hyperlinks and help

Hypertension is another name for *High blood pressure*...

Figure by MIT OpenCourseWare.

Reference Libraries

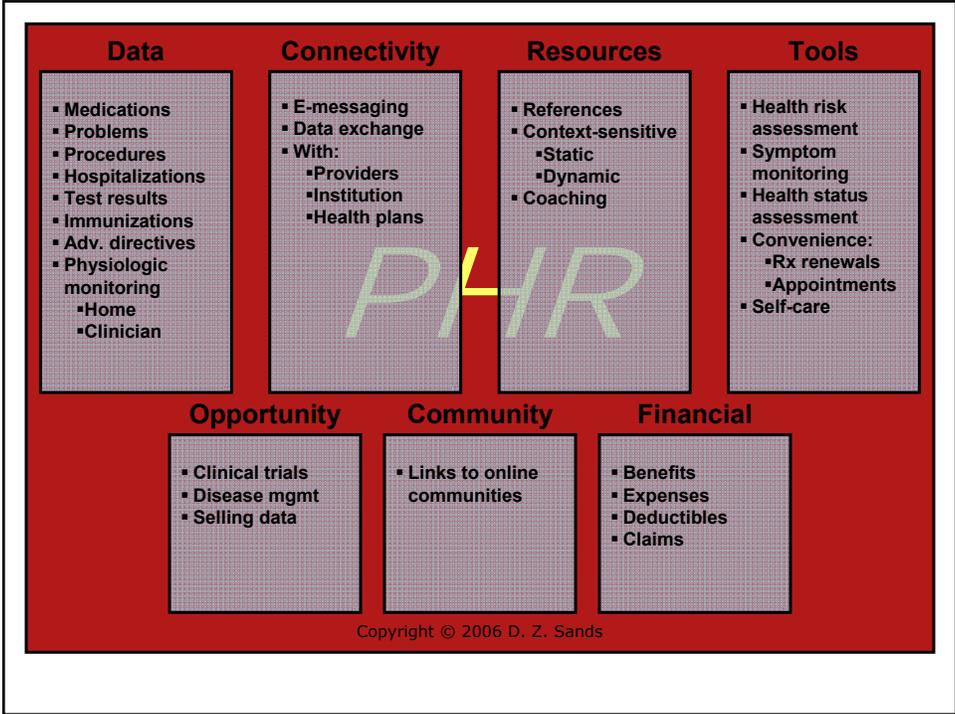
Automatic Translation (appropriate to patient literacy)

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Trust Requirements

- Encrypted communication
- Integrity
- Authentication
- Non-repudiation
- Time-stamps
- Withheld data flagged
- Standard terminology, when possible

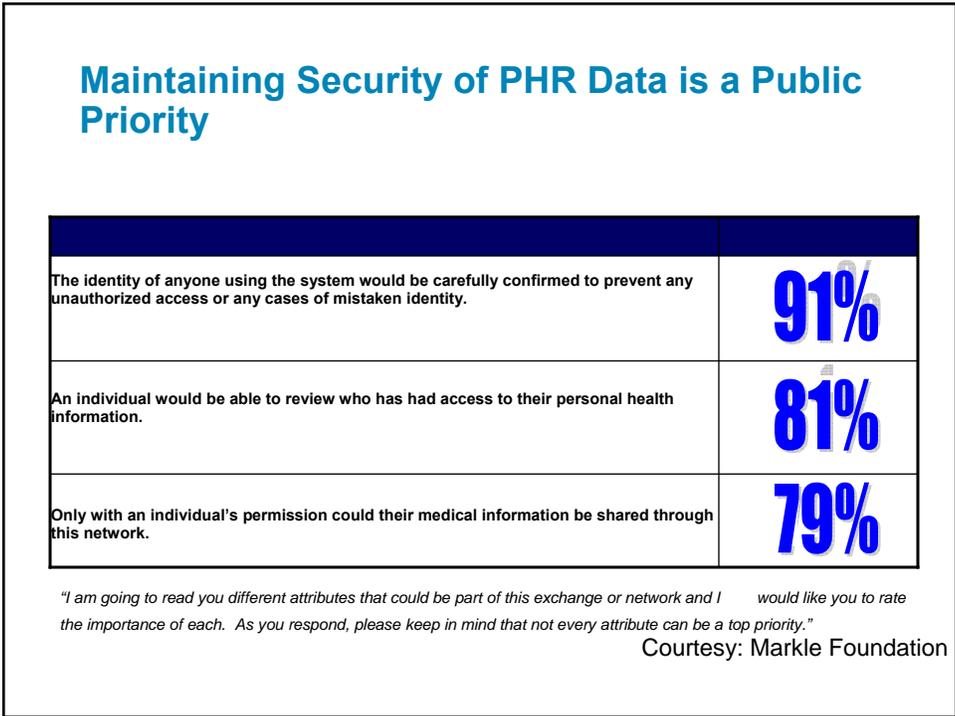
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		Data Type	
		Subjective	Objective
Data Source	Patient		
			home BP monitor



Figure by MIT OpenCourseWare.



Courtesy of the Markle Foundation. Used with permission.

Data Strategy: Low-Hanging Fruit

- Claims data: medications
- Claims data: diagnoses
- Home monitor interfaces
- Immunization registries
- Pharmacies?
- Commercial labs?

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Issues with Claims Data

- Medications (see MedsInfo-ED experience)
 - Limited history duration
 - No instructions
 - No self-pay
 - No OTCs
 - May require filtering due to legal restrictions
- Diagnoses
 - May not reflect reality
 - May not have secondary diagnoses
 - May require filtering due to legal restrictions
- Tests
 - No results

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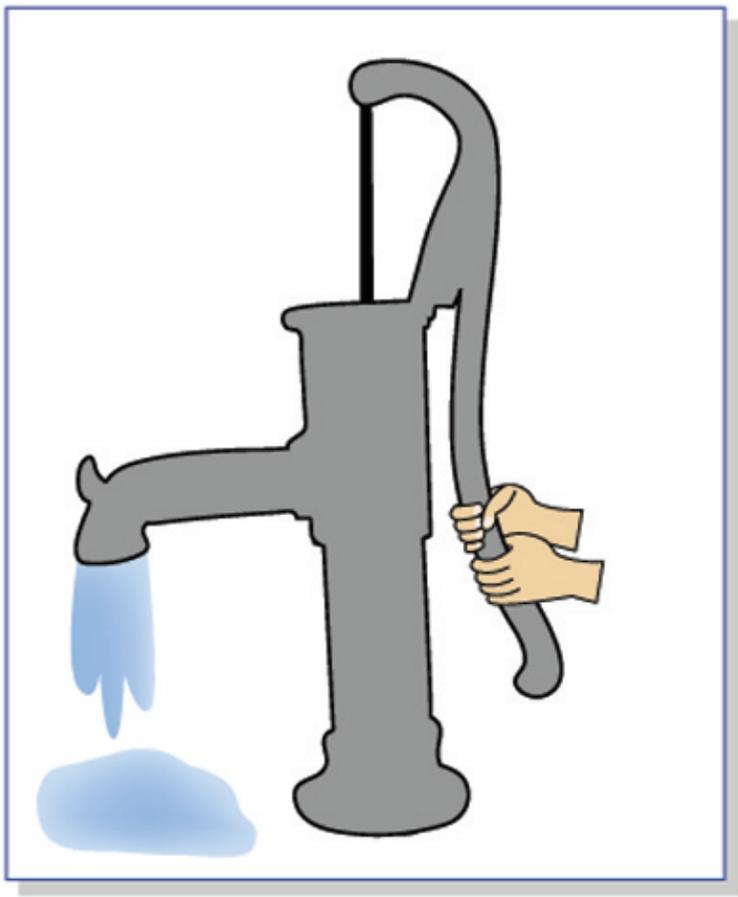


Figure by MIT OpenCourseWare.

PHR Media

- Paper
- Web
 - Standalone
 - Interconnected
 - Tethered
- Removable media
 - CD-ROM
 - USB drive
 - Linkages
 - Standalone
 - Interconnected

Collage of three images removed due to copyright restrictions.

- 1) Paper notebook: "My Personal Health"
- 2) Screenshot from website WebMD
- 3) Photo of USB drive

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A patient's personal health card, containing:
Family, doctor, and pharmacy contacts
Social service contacts (e.g. elder care)
List of conditions being tracked
Medications – dosages, times of day, purpose

Image removed due to copyright restrictions.

<http://www.patientsite.org>

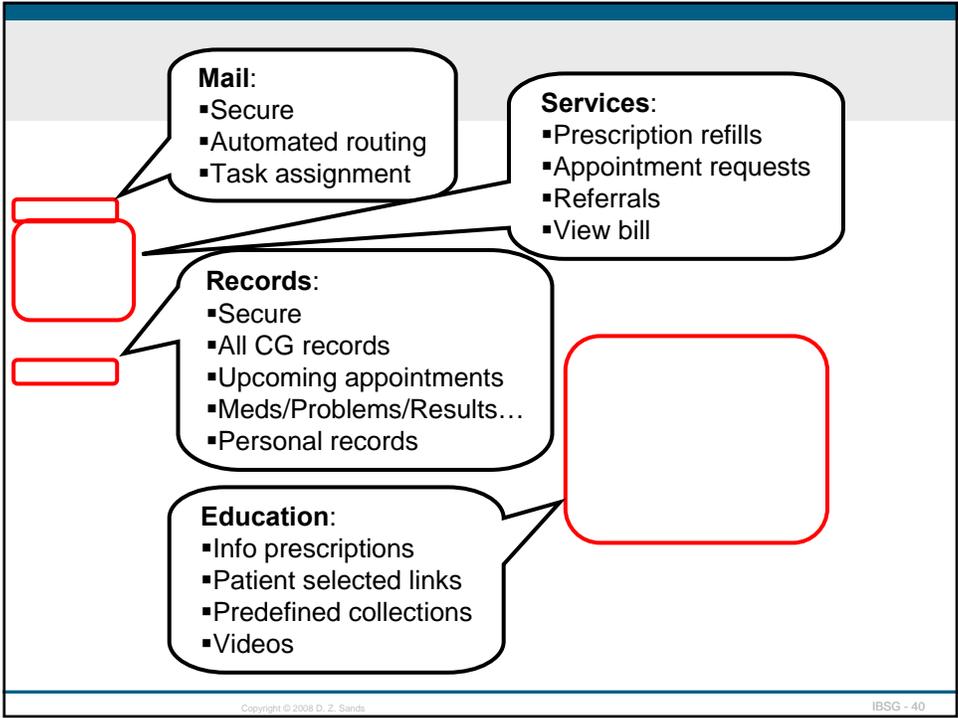


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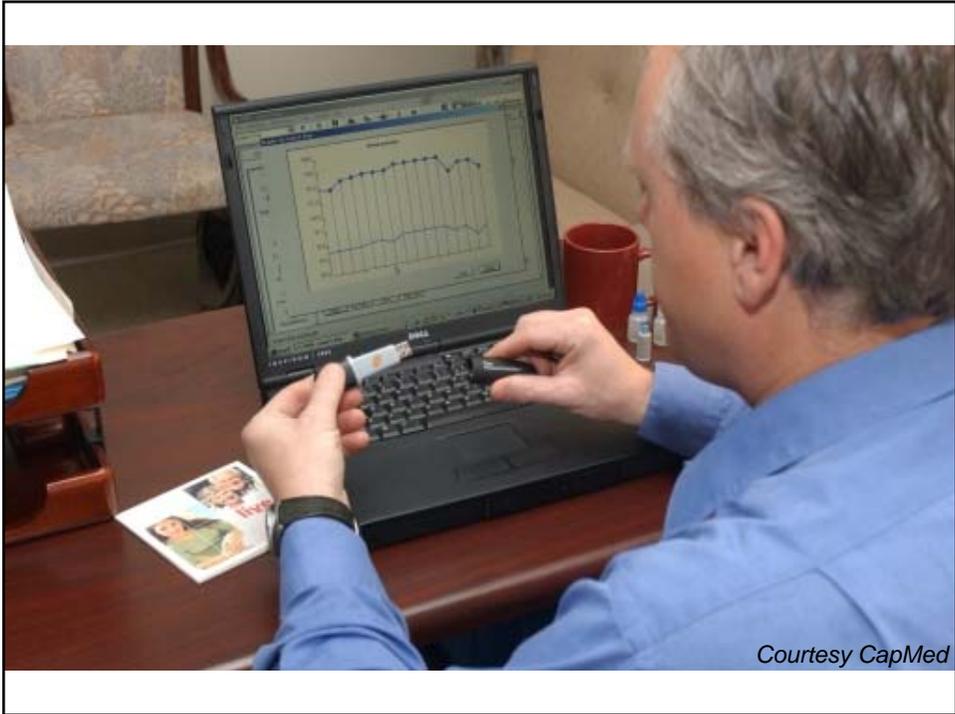
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Website screenshot.

<https://healthmanager.webmd.com>

At the bottom of the screenshot, there is small text that reads "Copyright © 2008 D. Z. Sands" and "IBSG - 41".



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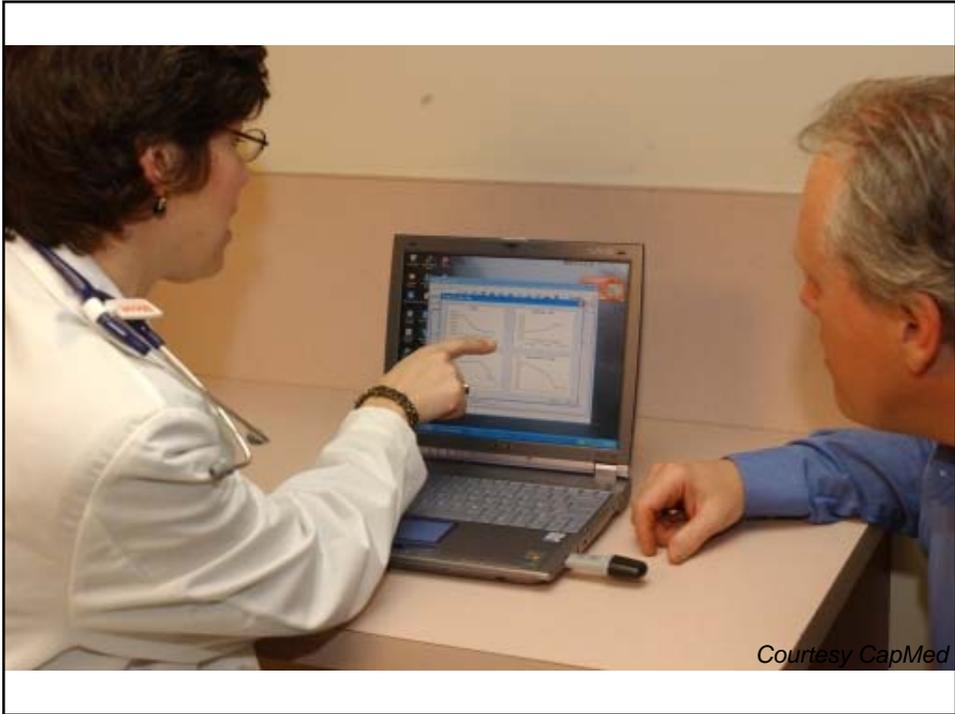
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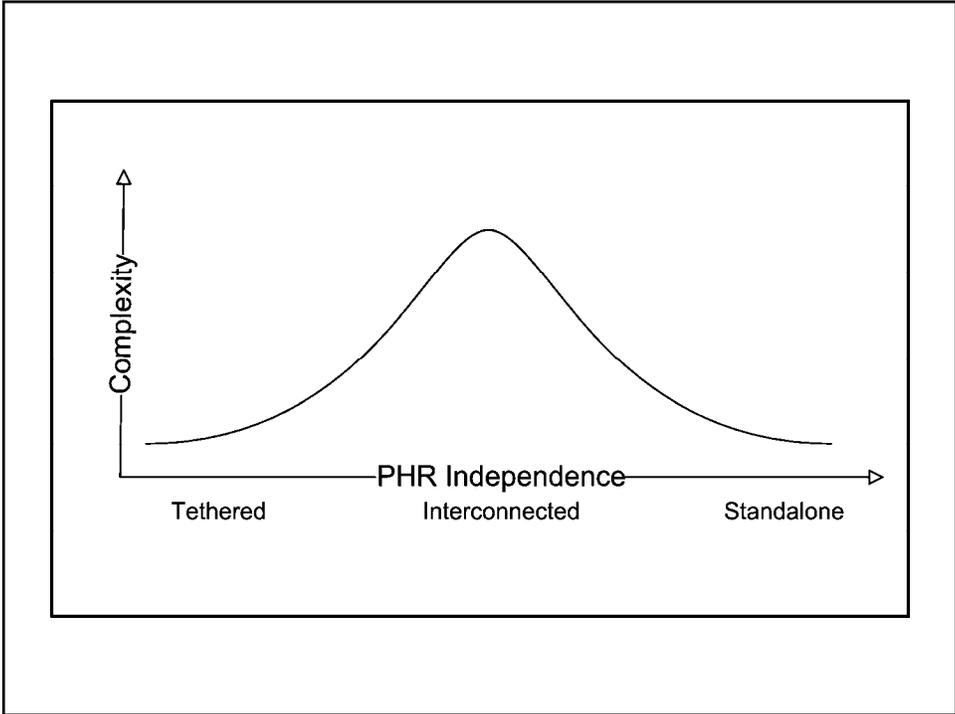
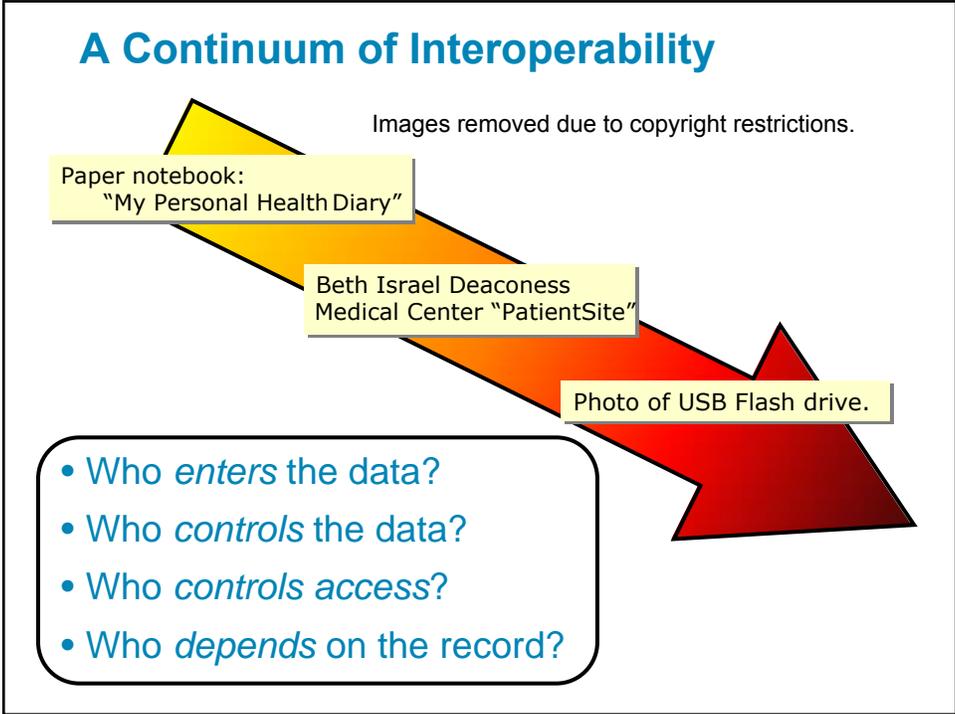
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When is a PHR not a PHR?

When it's a receptacle for
PHR Data.

E.G. Microsoft's HealthVault

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<http://www.healthvault.com>

HealthVault Privacy

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HealthVault's "Privacy Commitment" statement.

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HealthVault Contributions

- Privacy policy
- Interoperability through API
- A storage area for:
 - PHR
 - Other data sources
 - Various applications

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Who Will Use PHR?

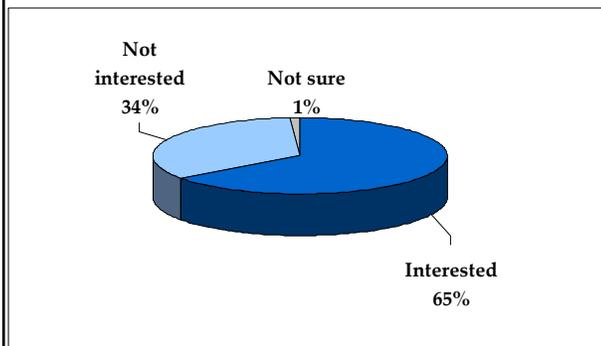
- Truly well and worried well
- Engaged patients chronic conditions
- Parents of young children (esp. ill)
- Grown children caring for ill parent
- Possibly anyone with incentives?

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Majority Interested in Accessing Information Online

Interest in Accessing Health Information Online



- Majority of all subgroups express interest, even seniors (53%)
- Most interested include:
 - Under 40 (72%)
 - Daily Internet users (71%)
 - Parents (70%)

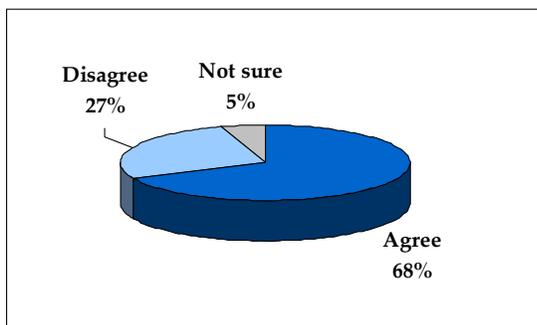
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CONNECTING FOR HEALTH COMMON FRAMEWORK Courtesy: Markle Foundation

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Online Access as a Way to Gain More Control Over Care

Health Information Online Will Give People More Control Over Own Care



Most likely to agree:

- 18 to 29 year olds (81%)
- African Americans (79%)
- Daily Internet users (76%)
- Parents (74%)
- Frequent users of health care system (74%)

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Ways to Manage Own Care With Secure Network

- Tracking symptoms or changes in health (90% say would be important personally)
- Tracking financial aspects of health care (80% interested)
- Tracking child's health records and services, like immunization dates (82% of parents interested)

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Benefits Relating to Quality of Care and Cost

- Checking doctor's chart to make sure situation is understood (91% important)
- Checking medical records for mistakes (84% interested)
- Looking at test results (82% interested)
- Reducing unnecessary or repeated tests and procedures (88% important)

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Willingness to Share Information, If Safeguards in Place

- To detect disease outbreaks (73% willing)
- To improve quality of care (72%)
- To detect medical fraud (71%)
- To detect bio-terrorist attacks (58%)

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Who Will Fund PHR?

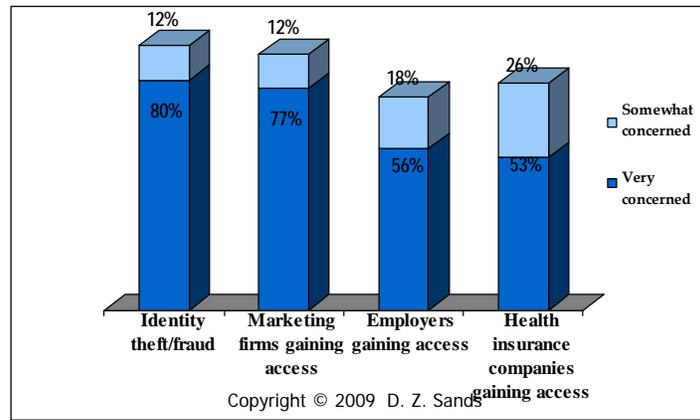
- Individuals (limited population)
- Health care institutions (tethered)
- Employers (self-insured)
- Health plans

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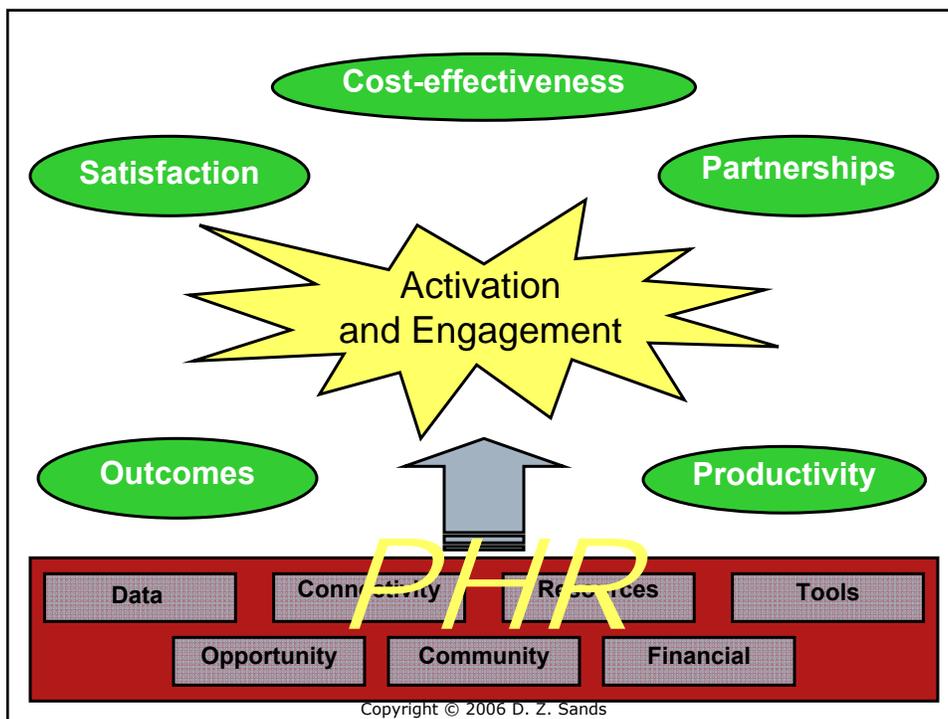
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Yet There Is Very High Concern About Unwanted Access

Privacy and Access Concerns



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PHR Conclusions

- Patient engagement may be helpful
- PHR may be route to engagement
- Business case is evolving
- Benefits need to be studied
- PHR is an important, potentially disruptive health information technology

SF 61 y.o. M Minister with Diabetes, Chronic Pain Syndrome, and Multiple Medical Issues

"I have a lot of medical issues. This ... system has left me feeling comfortable and in good hands! Otherwise, I would feel as cold, depleted, and alone, as the lifeless tree in my front yard in the deepest of winter!"

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Cartoon: "Herman" by Jim Unger, 7/19/2002.
Two cavemen, one holding a burning stick,
the other saying "That's fantastic! I can't
keep up with all this modern technology."

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Spring 2009

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