Public Health Informatics, Consumer Health Informatics, mHealth & Personal Health Records (PHRs)

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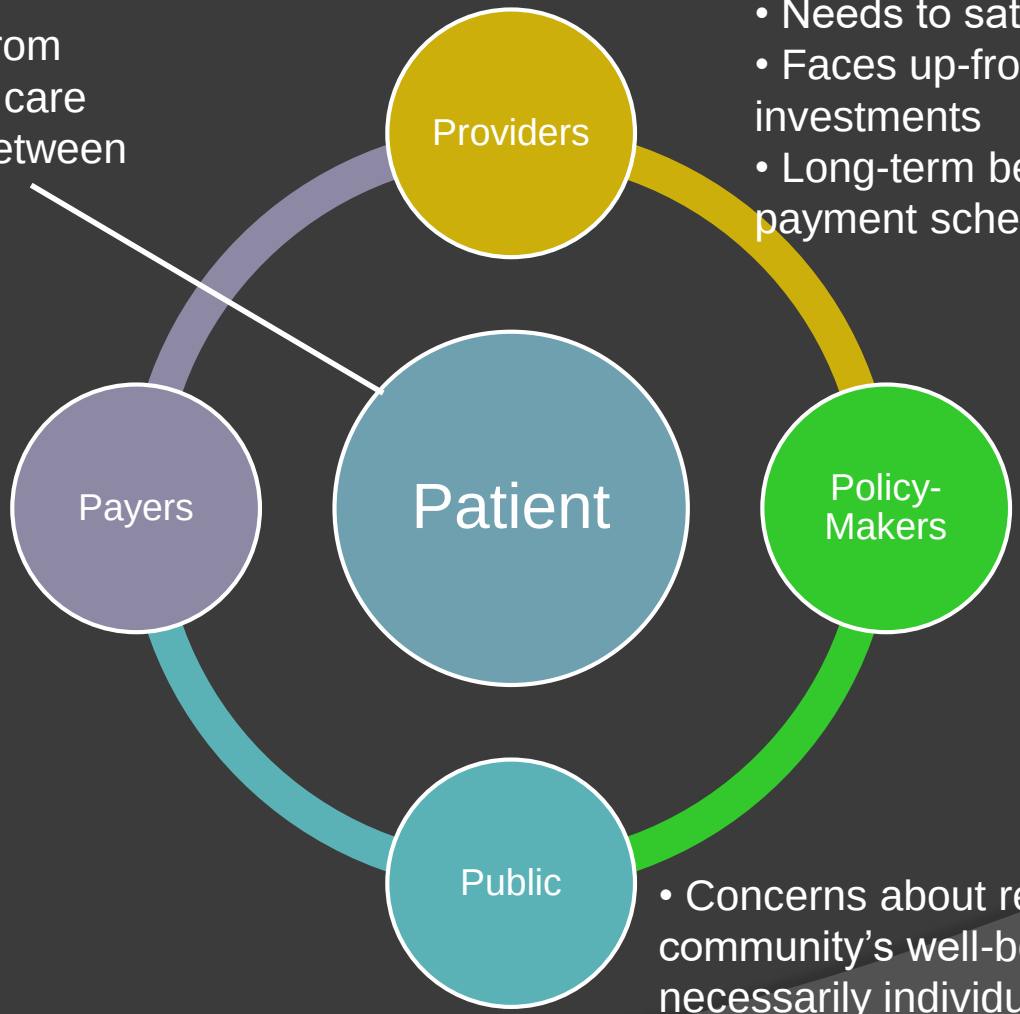
Oct. 24, 2017 SlideShare.net/Nawanan

Stakeholders in Health Care



- Directly benefits from improved quality of care
- Knowledge gap between patient & providers

- Needs to satisfy many “bosses”
- Faces up-front costs in health IT investments
- Long-term benefits depend on payment schemes

- High bargaining power
- Benefit with improved quality in fee-for-service

- Require data for policy-making
- Limited budget
- Often face bureaucracies
- Highly political

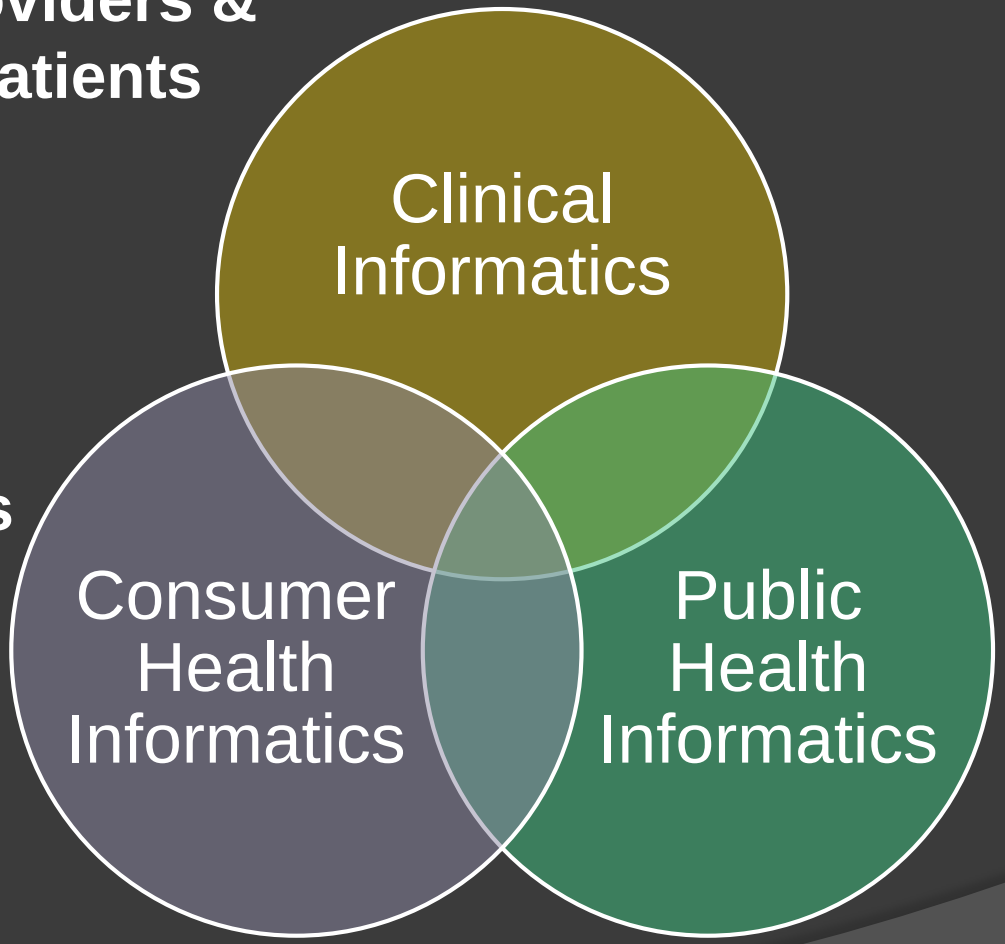
- Concerns about resource allocation & community’s well-being, but not necessarily individual patients

Diagram modified from Supachai Parchariyanon’s 4Ps Concept

The Intersection

Providers & Patients

Patients & Consumers



Policy-Makers, Payers, Public (Also providers)

Public Policy & Public Health Informatics

Public Policy in Informatics: A US's Case

1991: IOM's CPR Report published

1996: HIPAA enacted

2000-2001: IOM's To Err Is Human & Crossing the Quality Chasm published

2004: George W. Bush's Executive Order establishing ONCHIT (ONC)

2009-2010: ARRA/HITECH Act & "Meaningful use" regulations

Political Support Behind Health IT

"...We will make wider use of electronic records and other health information technology, to help control costs and reduce dangerous medical errors."

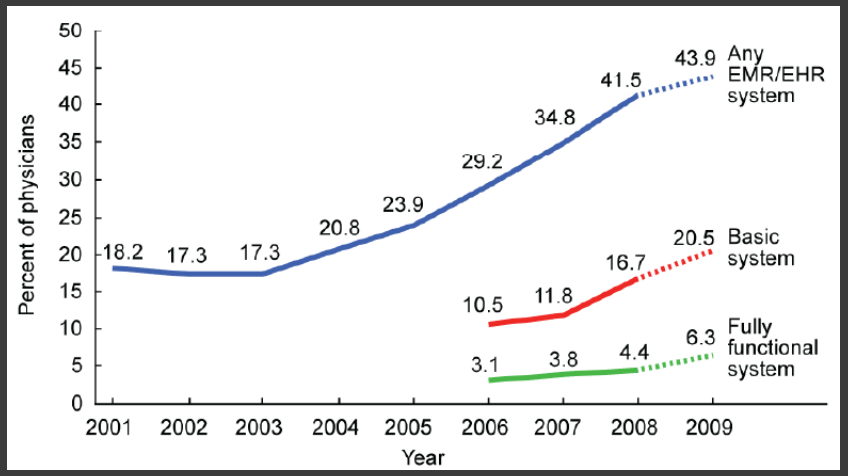
President George W. Bush
Sixth State of the Union Address
January 31, 2006

Source: Wikisource.org

Image Source: Wikipedia.org

U.S. Adoption of Health IT

Ambulatory (Hsiao et al, 2009)



Hospitals (Jha et al, 2009)

Basic EHRs w/ notes	7.6%
Comprehensive EHRs	1.5%
CPOE	17%

- U.S. lags behind other Western countries (Schoen et al, 2006;Jha et al, 2008)
- Money and misalignment of benefits is the biggest reason

President Obama Backs Health IT

"…Our recovery plan will invest in electronic health records and new technology that will reduce errors, bring down costs, ensure privacy, and save lives."

President Barack Obama
Address to Joint Session of Congress
February 24, 2009

Source: WhiteHouse.gov

American Recovery & Reinvestment Act

- Contains **HITECH** Act (**H**ealth **I**nformation **T**echnology for **E**conomic and **C**linical **H**ealth Act)
- ~ 20 billion dollars for Health IT investments
- Incentives & penalties for providers

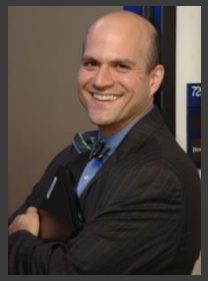
U.S. National Leadership

Office of the National Coordinator for Health Information Technology (ONC -- formerly ONCHIT)

David Brailer, MD, PhD
National Coordinator for Health Information Technology
(2004 - 2007)

David Blumenthal, MD, MPP
National Coordinator for Health Information Technology
(2009 - 2011)

Robert Kolodner, MD
National Coordinator for Health Information Technology
(2006 - 2009)



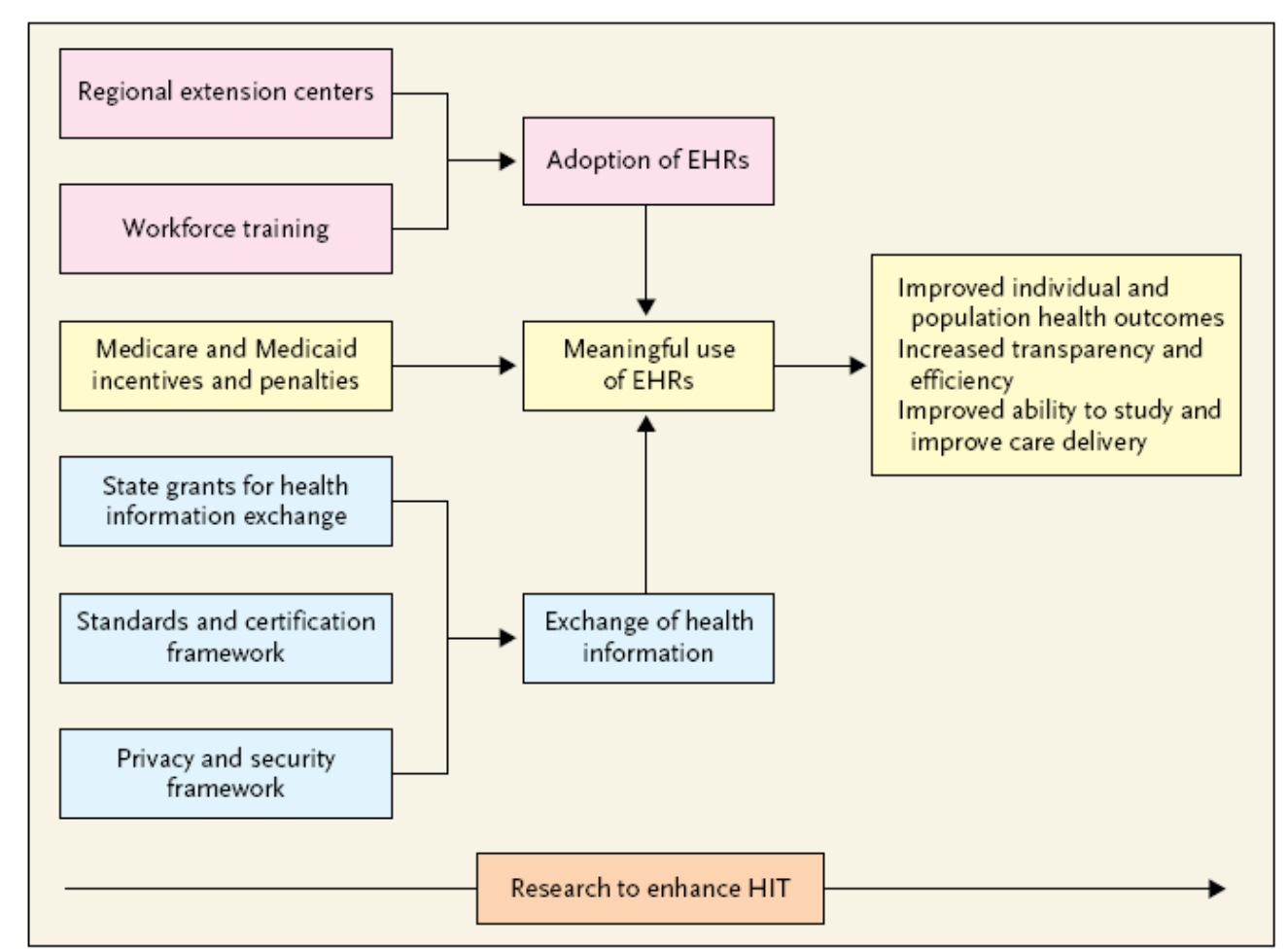
Farzad Mostashari, MD, ScM
National Coordinator for Health Information Technology
(2011 - 2013)

Karen B. DeSalvo, MD, MPH, MSc
National Coordinator for Health Information Technology
(2014 - 2016)

Vindell Washington, MD, MHCM
National Coordinator for Health Information Technology
(2016 - Present)

Photos courtesy of U.S. Department of Health & Human Services

What is in HITECH Act?



The HITECH Act's Framework for Meaningful Use of Electronic Health Records (EHRs).

Blumenthal D. Launching HITECH. **N Engl J Med.** 2010 Feb 4;362(5):382-5.

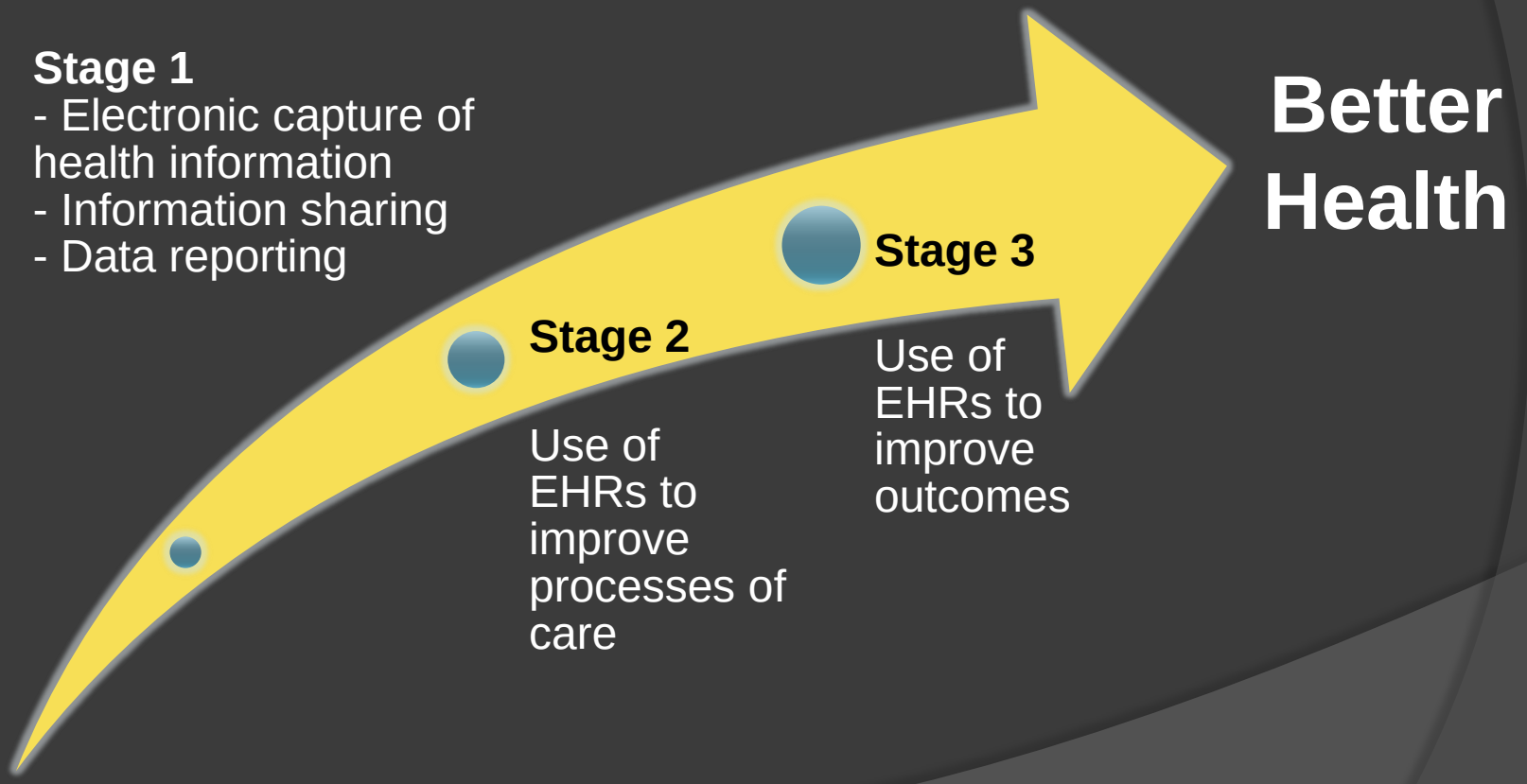
“Meaningful Use”

Pumpkin

“Meaningful Use” of a Pumpkin

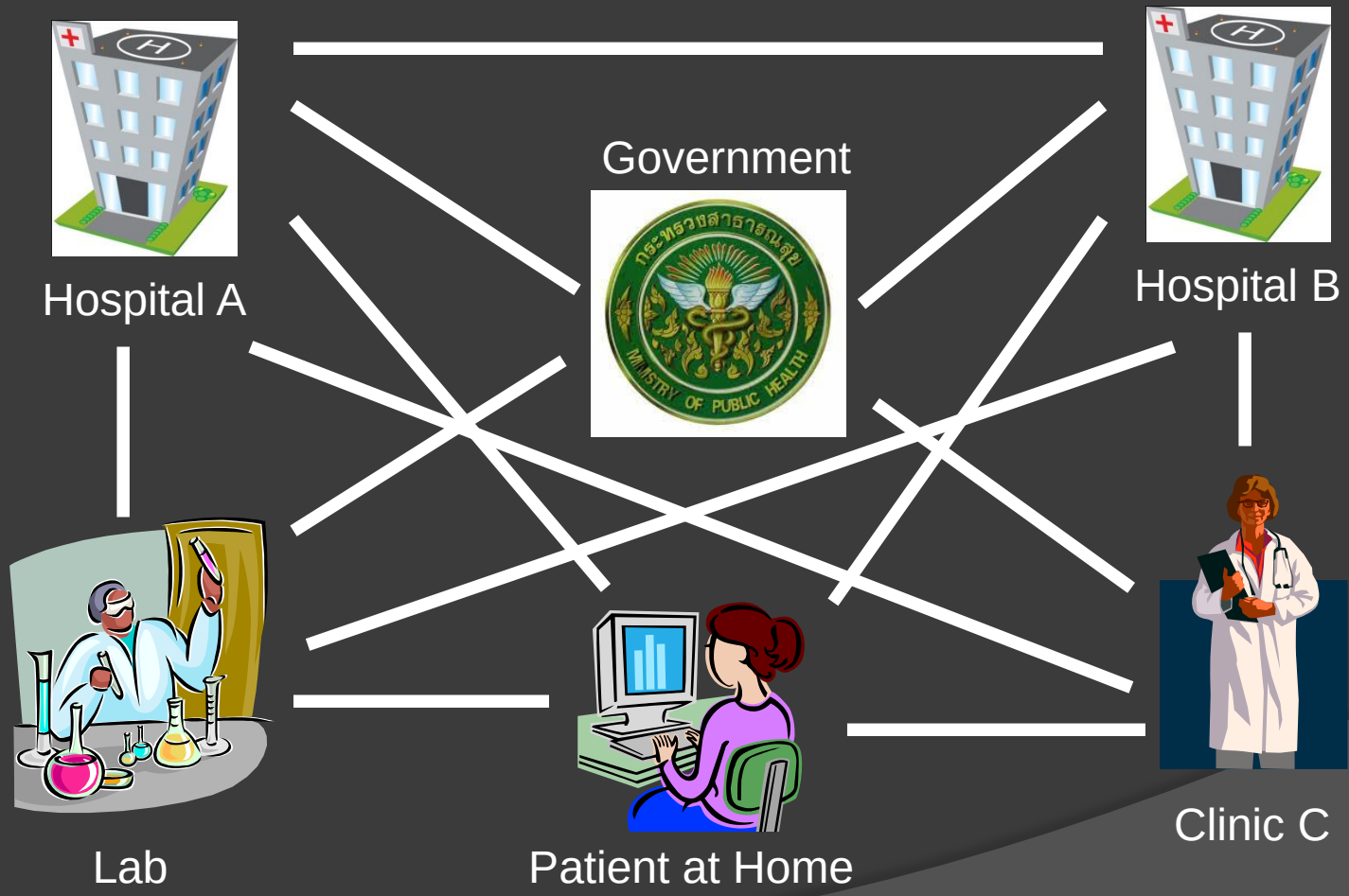
Image Source & Idea Courtesy of Pat Wise at HIMSS, Oct. 2009

“Meaningful Use” of Health IT



(Blumenthal D, 2010)

Health Information Exchange (HIE)



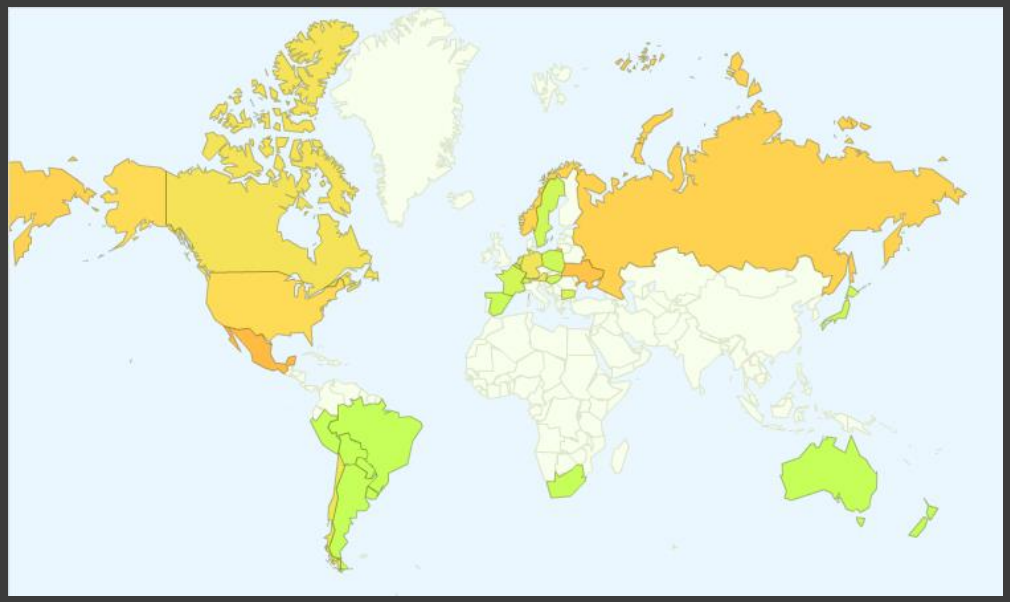
Health Information Exchange in the U.S.

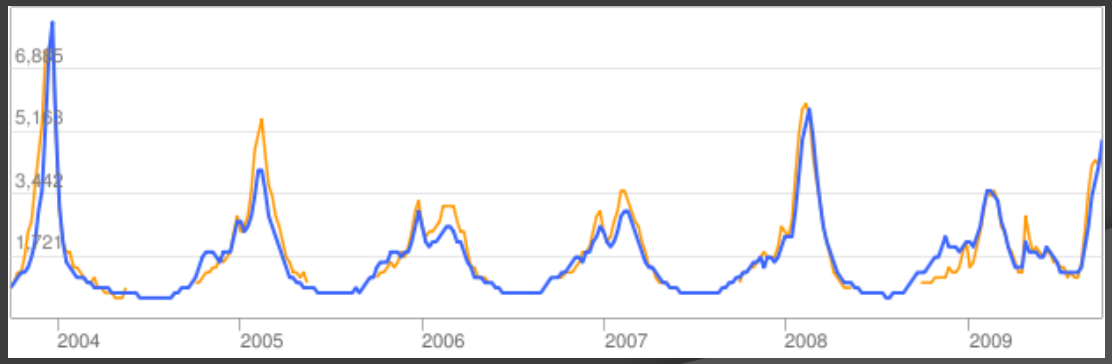
- Regional Health Information Organizations (RHIOs)
- State e-Health initiatives
- Nationwide Health Information Network (NHIN)
- Still ongoing efforts, but with significant progress

Other Public Health Informatics Applications

- e-Health & m-Health
  - m-Health in disaster management: #ThaiFlood
- Data reporting to government agencies
  - Claims & reimbursements
  - Diseases
  - Utilization statistics
  - Quality measures
  - etc.
- Biosurveillance (case reporting vs. predictive)
- Epidemiologic & health services research

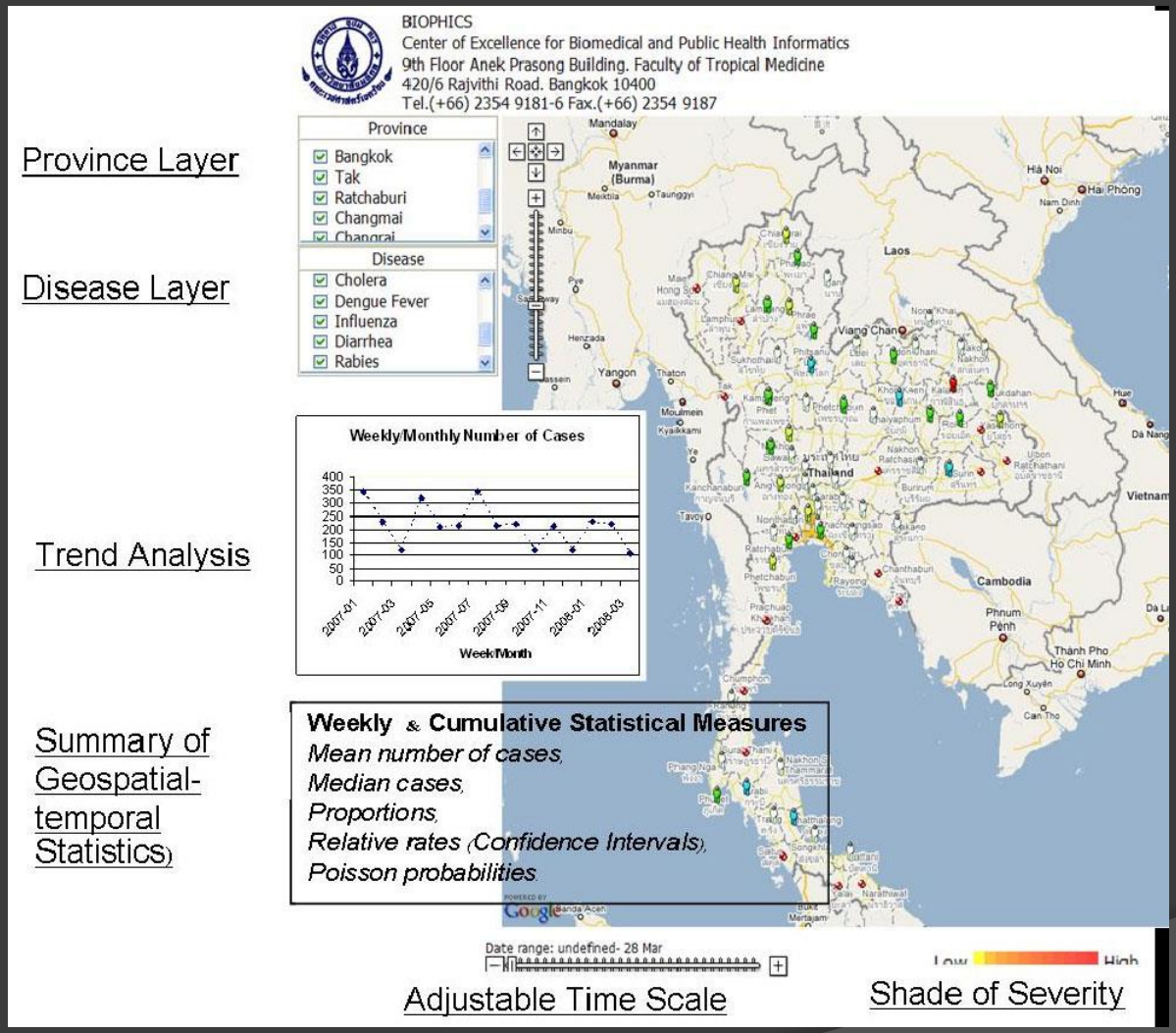
Google Flu Trends





Source: Google.org/FluTrends

Thailand's Biosurveillance



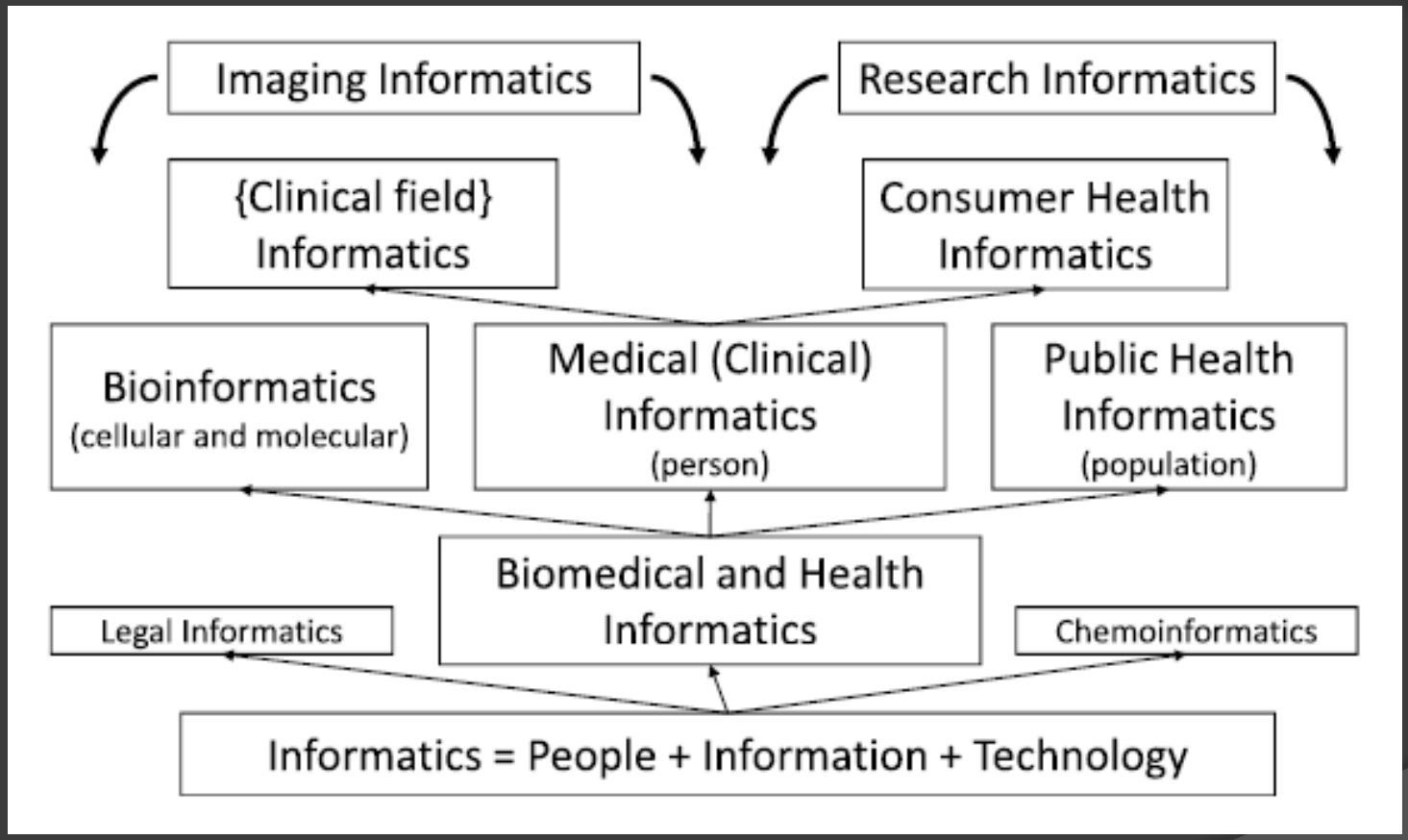
Source: www.biophics.org

Consumer Health Informatics

Consumer Health Informatics (CHI)

- “The field devoted to informatics from a consumer view.” (Hersh, 2009)

M/B/H Informatics As A Field



(Hersh, 2009)

Examples of Areas within Consumer Health Informatics

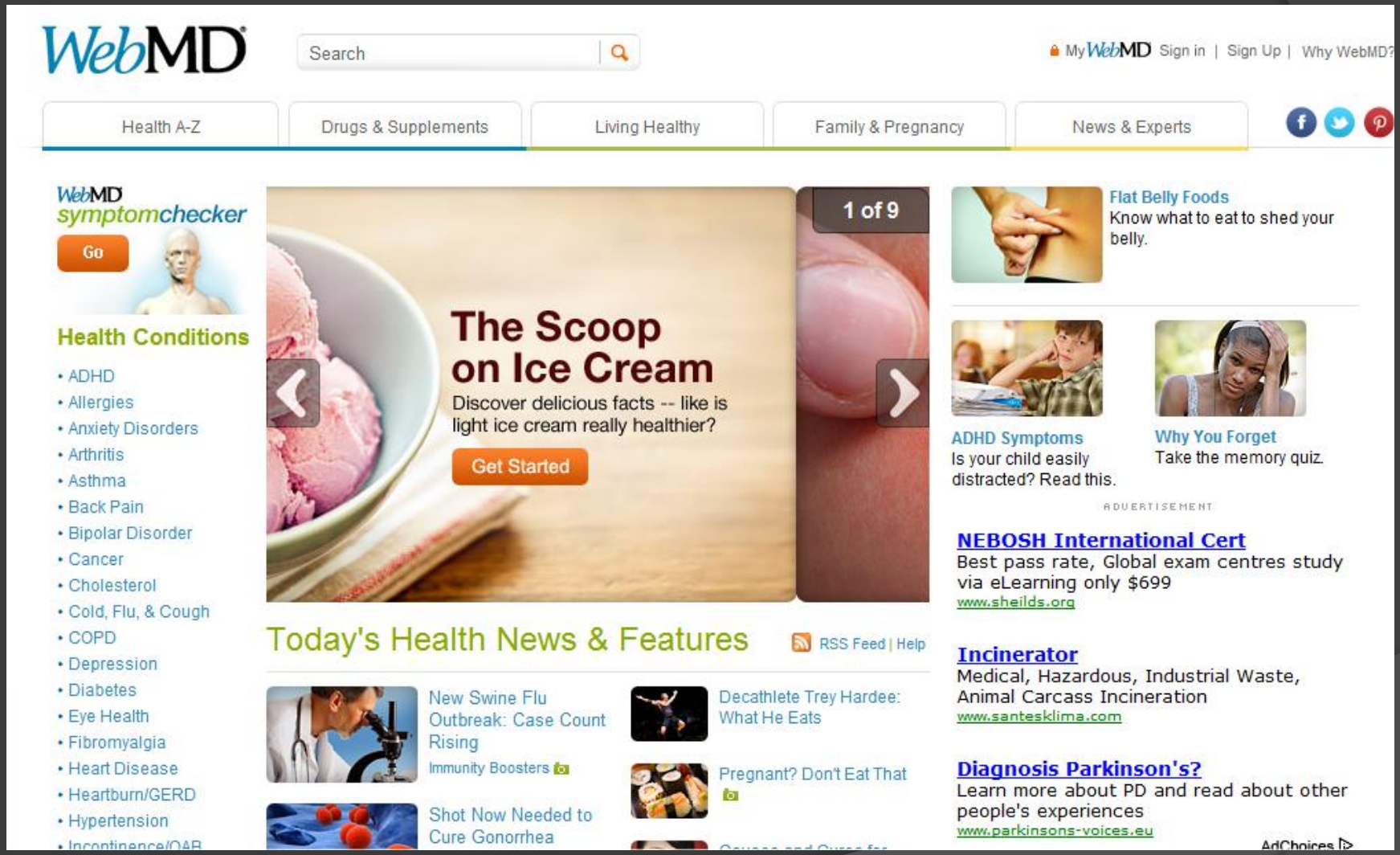


Image Source: http://www.webmd.com/

Examples of Areas within Consumer Health Informatics

HOW THE LORD TOLD ME TO CURE CANCER.

posted 7-13-05 at earthchanges@yahoogroups.com

(This is a reprint of the ad in The Northwest Herald.)

Please save this page as it won't be printed again by me. It may save your life or the life of a
for word.

Every week around 10,000 people die of cancer. Government figures show the death rate for cancer
save around 10% of the people treated. So this shows our
doctors don't have much to work with. As this article goes on, I will explain how to prepare this
reason, the Lord has picked me to carry these words to you. I
am only the delivery boy, and none of this is my idea. I do believe every word I write here, and
for giving me back my life and health.

A little over three years ago I was about done in with cancer. One morning as I was waking up and
have to do something about your prostate cancer. Take the root of the dandelion. Don't expect a m
was gone. I thought the voice was kidding to use the dandelion. When this voice tells you to do s
the last thing I ever expected to do. Then I thought he didn't tell me how much to take or how to
take, how to prepare it, and it would take 4 to 6 months to cure me. I also knew I wasn't to make

As soon as I got around that morning, I dug some roots and started to prepare it. About a week la
side was gone and my bowels had improved. Five and one half months later they could find no cance

I, then wanted to find someone else to try it, and that was the biggest problem yet. Nobody seems
nuts. Finally, I was telling a friend about it and he said he had a friend that was dying of lung
tapping his lungs. He had been given 4 to 6 weeks to live. After he had been on this powder about
car. He went to his doctor's office, and the doctors could not believe it. They took him to the h

Image Source: http://www.greatdreams.com/cancer-cure.htm

Examples of Areas within Consumer Health Informatics

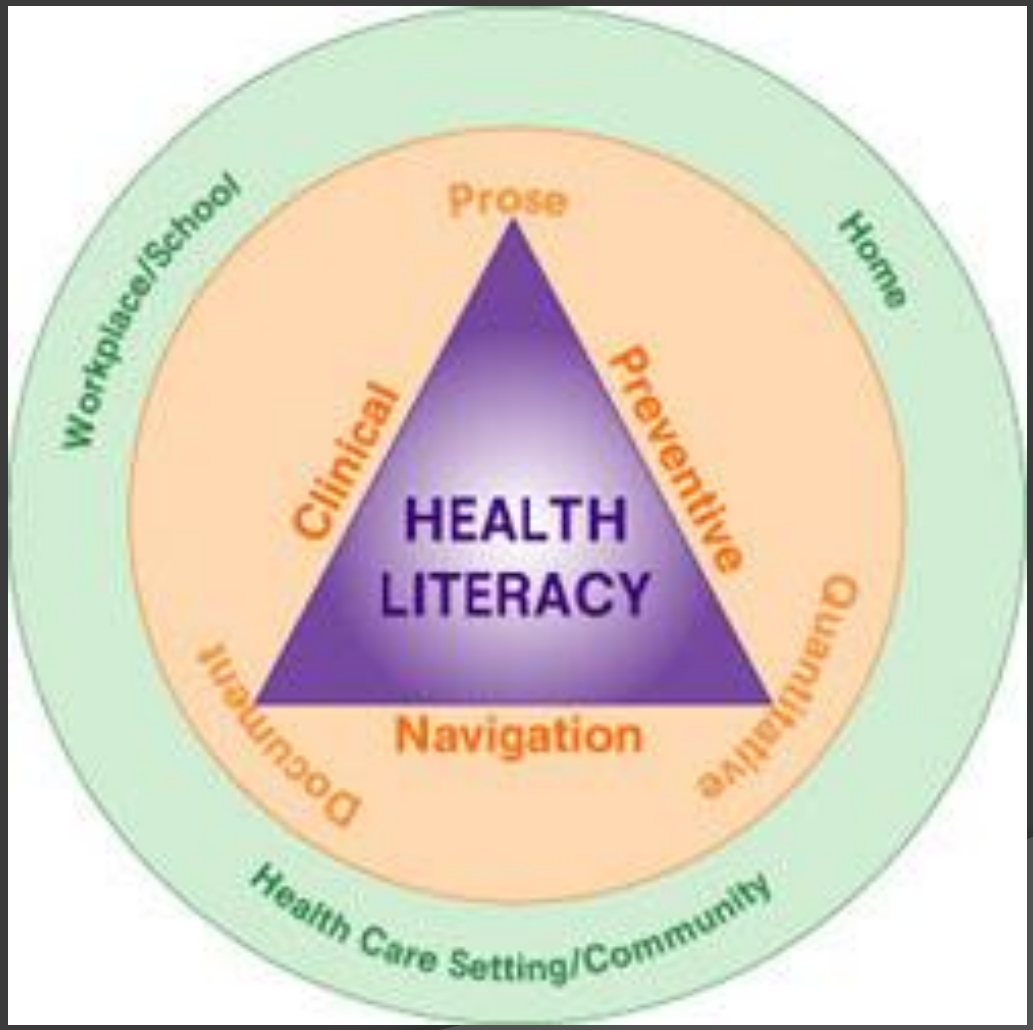


Image Source: http://www.hon.ch/, http://socialmarketing.blogs.com/r_craiig_lefebvres_social/2007/02/health_literacy.html

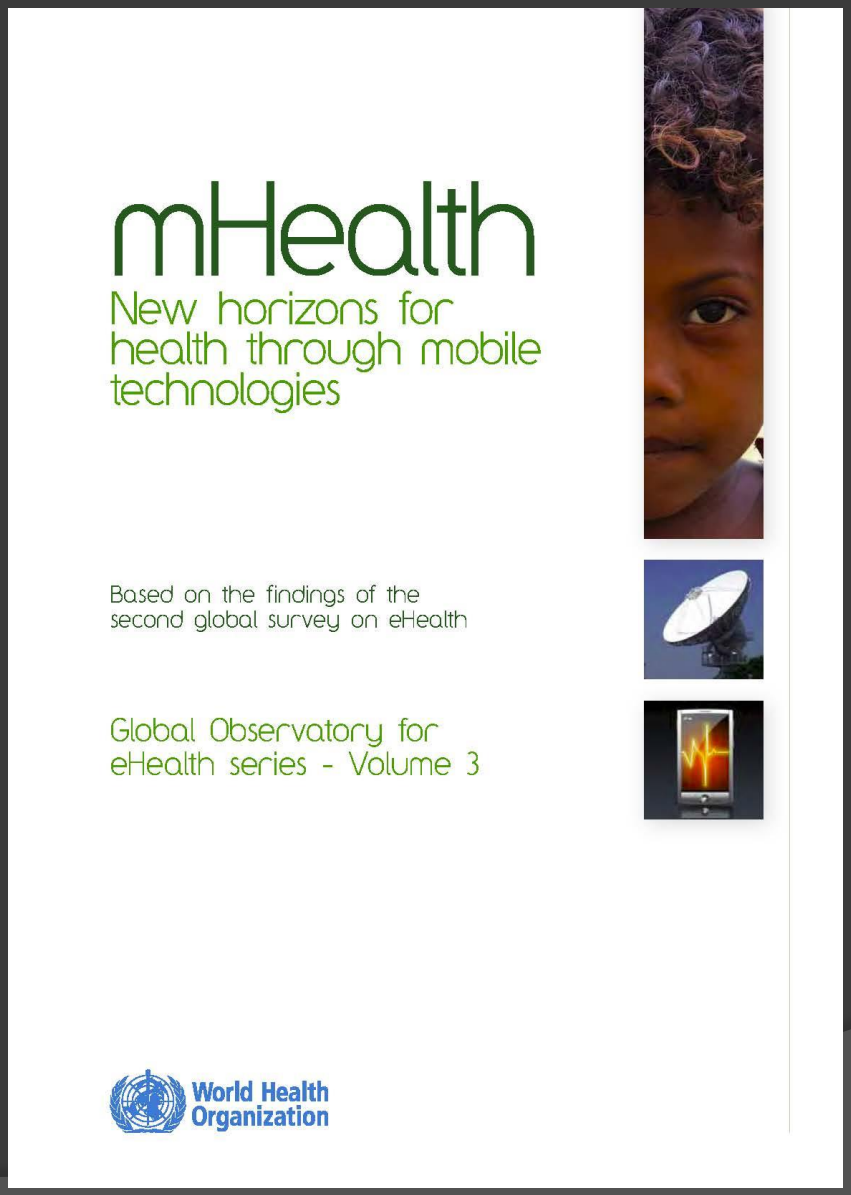
Examples of Areas within Consumer Health Informatics

Image Source: http://michaelcarusi.com/2012/01/01/when-you-should-not-become-a-social-media-manager/

Examples of Areas within Consumer Health Informatics

Image Source: http://ucedtech.wikispaces.com/Welcome

mHealth

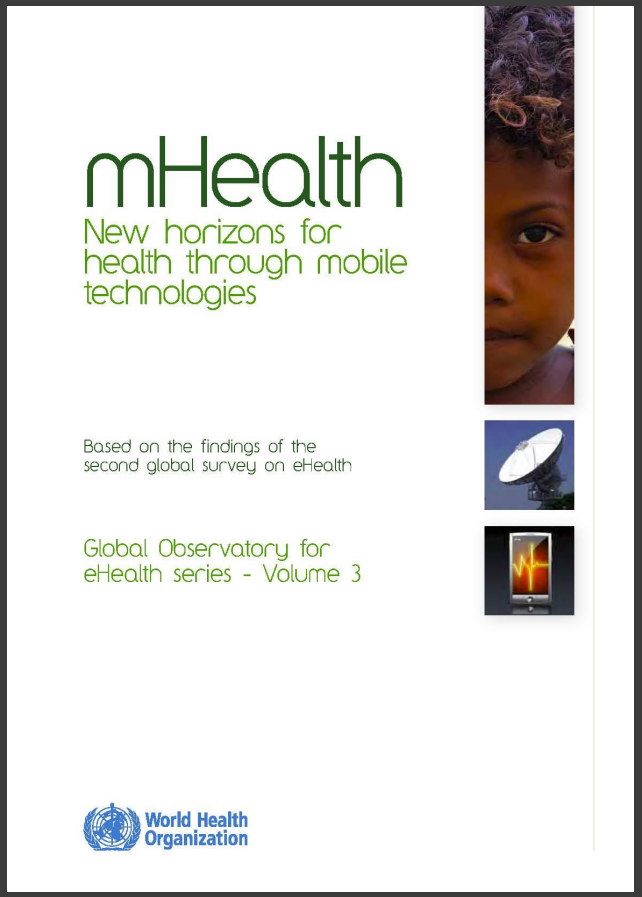


http://whqlibdoc.who.int/publications/2011/9789241564250_eng.pdf

Defining mHealth (mobile health)

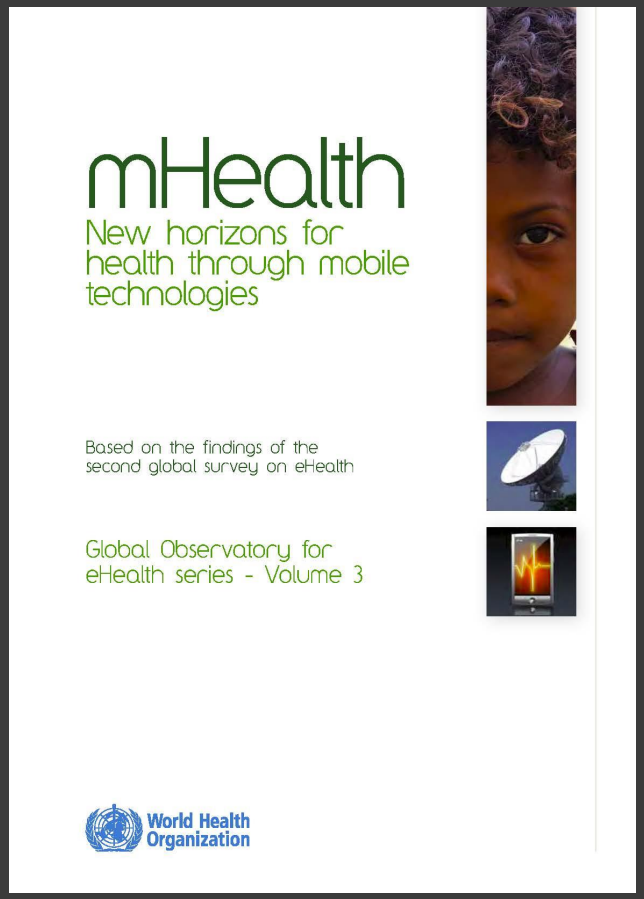
- **WHO:** "Medical and public health practice supported by mobile devices, such as mobile phones, patient monitoring devices, PDAs, and other wireless devices. mHealth involves the use and capitalization on a mobile phone's core utility of voice and SMS as well as more complex functionalities and applications including GPRS, 3G & 4G systems, GPS, and Bluetooth technology."

mHealth



- Majority of Member States reported offering at least one type of mHealth service. Many offered 4-6 programmes. Frequently reported mHealth initiatives were:
  - Health call centres (59%)
  - Emergency toll-free telephone services (55%)
  - Managing emergencies and disasters (54%)
  - Mobile telemedicine (49%)

http://whqlibdoc.who.int/publications/2011/9789241564250_eng.pdf



mHealth

- Barriers to mHealth adoption by countries
  - Competing health system priorities
  - Lack of evidence on evaluation
  - Results-based evaluation of mHealth implementations is not routinely conducted (only 12% of Member States)
  - Data security

http://whqlibdoc.who.int/publications/2011/9789241564250_eng.pdf

Examples of Areas within Consumer Health Informatics

Chicken Noodle Soup

Nutrition Facts

Serving Size 1/2 cup (120 ml) condensed soup
Servings Per Container about 2.5

Amount Per Serving

Calories	60	Calories from Fat	15
			% Daily Value*
Total Fat	1.5g		**2%**
Saturated Fat	0.5g		**3%**
Trans Fat	0g		
Cholesterol	15mg		
Sodium	890mg		**37%**
Total Carbohydrate	8g		**3%**
Dietary Fiber	1g		**4%**
Sugars	1g		
Protein	3g		

Vitamin A	4%	**Calcium**	0%
Vitamin C	0%	**Iron**	2%

*Percent Daily Values are based on a 2,000 calorie diet. Your Daily Values may be higher or lower depending on your calorie needs.

	Calories	2000	2500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400m	2400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Image Source: http://nutrition.about.com/od/recipesmenus/ss/learnlabels.htm

Class Exercise

As a healthcare consumer, what would you want from ICT? Examples?

Roles of ICT in Consumer Health Informatics

- Access to information
- Networking opportunities
- Education/Self-study
- Personalization
- Effective & efficient communications
  - With providers
  - Among patients
- Empowerment
- “User Experience”

Issues in Consumer Health Informatics

- Health literacy & IT literacy
- Cultural diversity & sensitivity
- Usability, information presentation
- Impact of ICT on behavioral modifications

- Integration with provider's systems
- Information exchange & interoperability
- Business model
- Privacy & security

Personal Health Records (PHRs)

Personal Health Records (PHRs)

- "An electronic application through which individuals can access, manage and share their health information, and that of others for whom they are authorized, in a private, secure, and confidential environment." (Markle Foundation, 2003)

- "A PHR includes health information managed by the individual... This can be contrasted with the clinician's record of patient encounter–related information [a paperchart or EHR], which is managed by the clinician and/or health care institution." (Tang et al., 2006)

Types of PHRs

- Patient portal from a provider's EHRs ("tethered" PHRs)
- Online PHRs
  - Stand-alone
  - Can be integrated with EHRs from multiple providers (unidirectional/bidirectional data sharing)
- Stand-alone PHRs
  - PC-based applications
  - USB Drive
  - CD-ROM or other data storage devices
  - Paper

PHRs and Other Systems

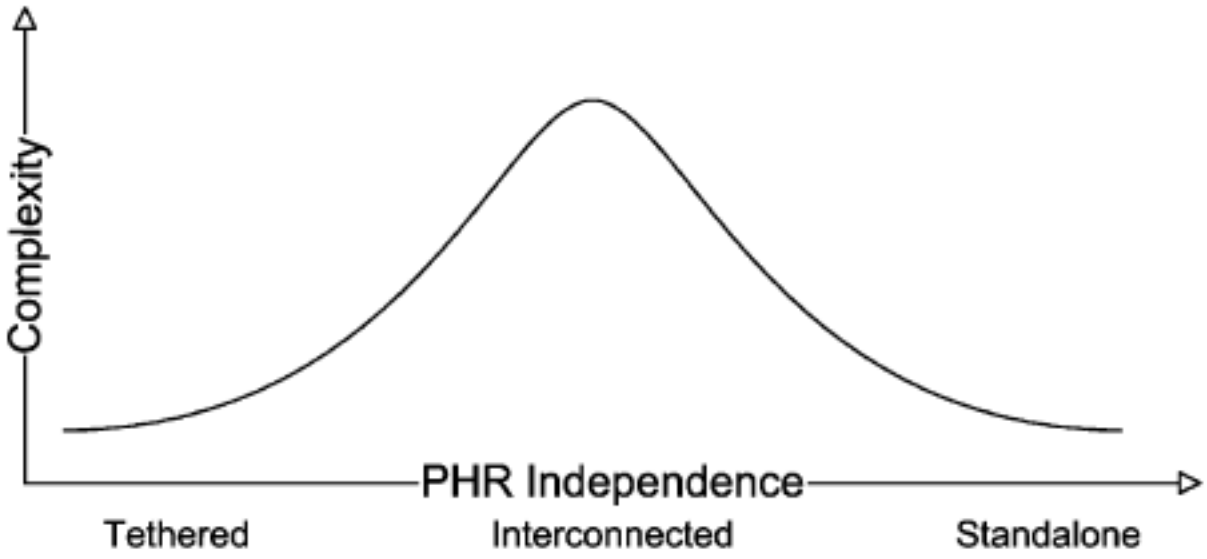
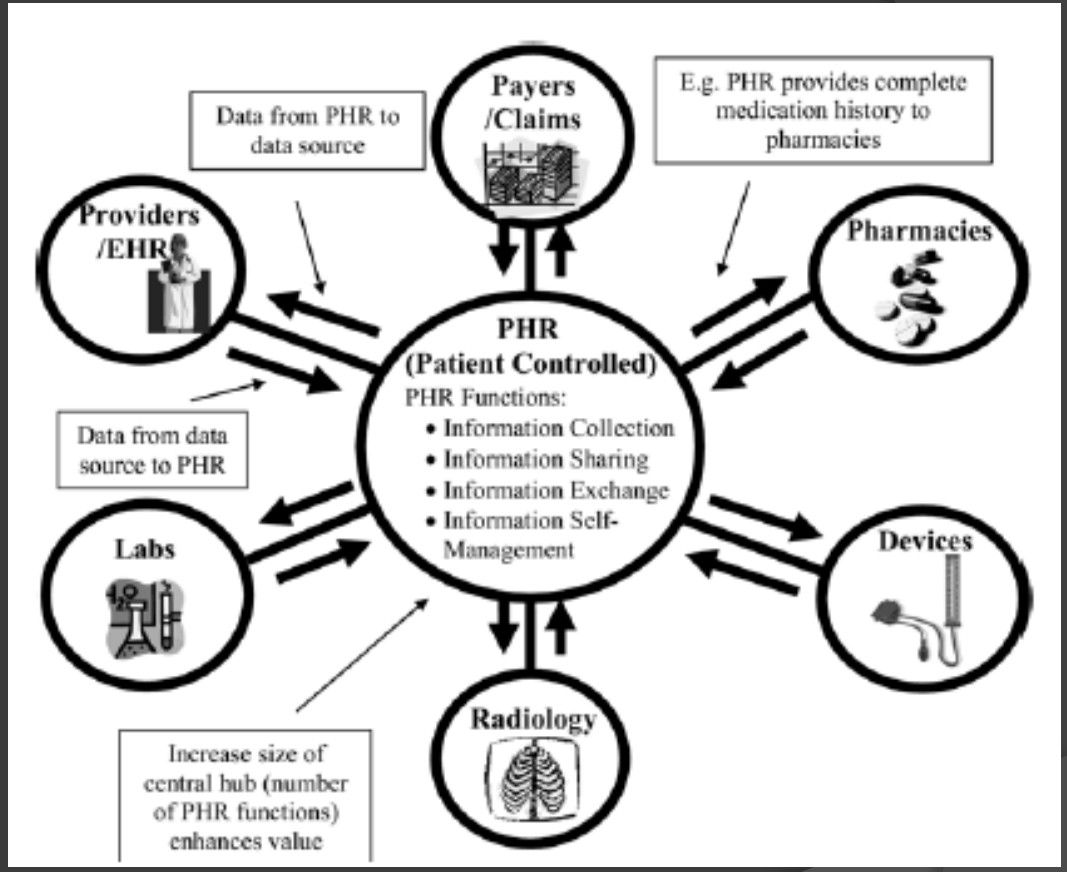


Figure 1. Range of complexity in various approaches to personal health records (PHRs).

(Tang et al., 2006)

Ideal PHRs

- Integrated
- Accessible
- Secure
- Comprehensive
- Accurate & current
- Patient able to manage sharing & update information
- Engaging & educational
- User-friendly, culturally & literacy appropriate



The "Hub and Spoke" Model
(Kaelber et al., 2008)

Use Cases of PHRs

- Data entry/update by patients
- Data retrieval by providers
  - With patient's consent
  - "Break-the-glass" emergency access
- Data update from EHRs
- Privacy settings
- Personalized patient education
- Communications with providers

Data in PHRs

Table 1 ■ Sample PHR Data Types and Potential Sources

Data Type	Source
Problem list	Patient, EHR
Procedures	Patient, EHR, or claims
Major illnesses	Patient, EHR, or claims
Provider list, potentially linked to problems	Patient, EHR
Allergy data	Patient, EHR
Home-monitored data (eg., BP, glucose, peak flow)	Patient, automated interface with equipment
Family history	Patient, EHR
Social history and lifestyle	Patient, EHR
Immunizations	Patient, EHR, immunization registries
Medications	Patient, EHR, claims history (partial data)
Laboratory tests	Patient, EHR, commercial laboratories

PHR = personal health record; EHR = electronic health record.

(Tang et al., 2006)

Other IT for Consumer Health

Traditional Web

- MedlinePlus
- Other sites

Social Media

- The Usuals: MySpace, Facebook, Twitter
- Blogs, forums
- PatientsLikeMe

Telemedicine & Telehealth

- Home monitoring/recording devices
- Tele-consultations, virtual visits
- http://media.nstda.or.th/video/viewVideo.php?video_id=1273

Connecting People to a Healthy Future With Personalized Care – Kaiser Permanente

https://www.youtube.com/watch?v=gxz9ZVvduGc

More “Future Vision”…

Microsoft Health: Future Vision

http://www.microsoft.com/showcase/en/us/details/b112da1c-c918-41ee-bb45-d6a553496168

NECTEC’s Smart Health

http://media.nstda.or.th/video/viewVideo.php?video_id=1273

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