# Consumer health informatics

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## What is Consumer Health Informatics?

-CHI does a lot of things but these THREE are the main focus.
-All these things aim to enable your consumer to take the right decisions by **informing and educating them**.

**A branch of health informatics that:**

**Analyzes** information needs of consumers.
Look into the methods to implement these needs and make information and services available

Studies and **implements** methods of making health information and services accessible to consumers.

**Integrates** consumer preferences into health care information systems. The most important thing is to satisfy your clients (patient, consumer and public)

❖ In this view, informatics analyzes consumers' needs for information; studies and implements methods for making information and services accessible to consumers; and models and integrates consumers' preferences into health information systems.

❖ Consumer informatics stands at the crossroads of other disciplines, such as nursing informatics, public health, health promotion, health education, library science, and communication science.
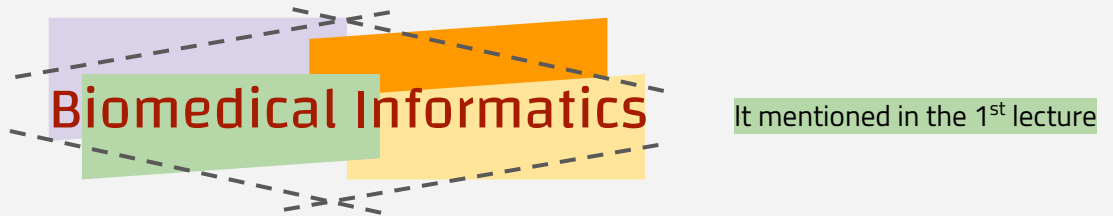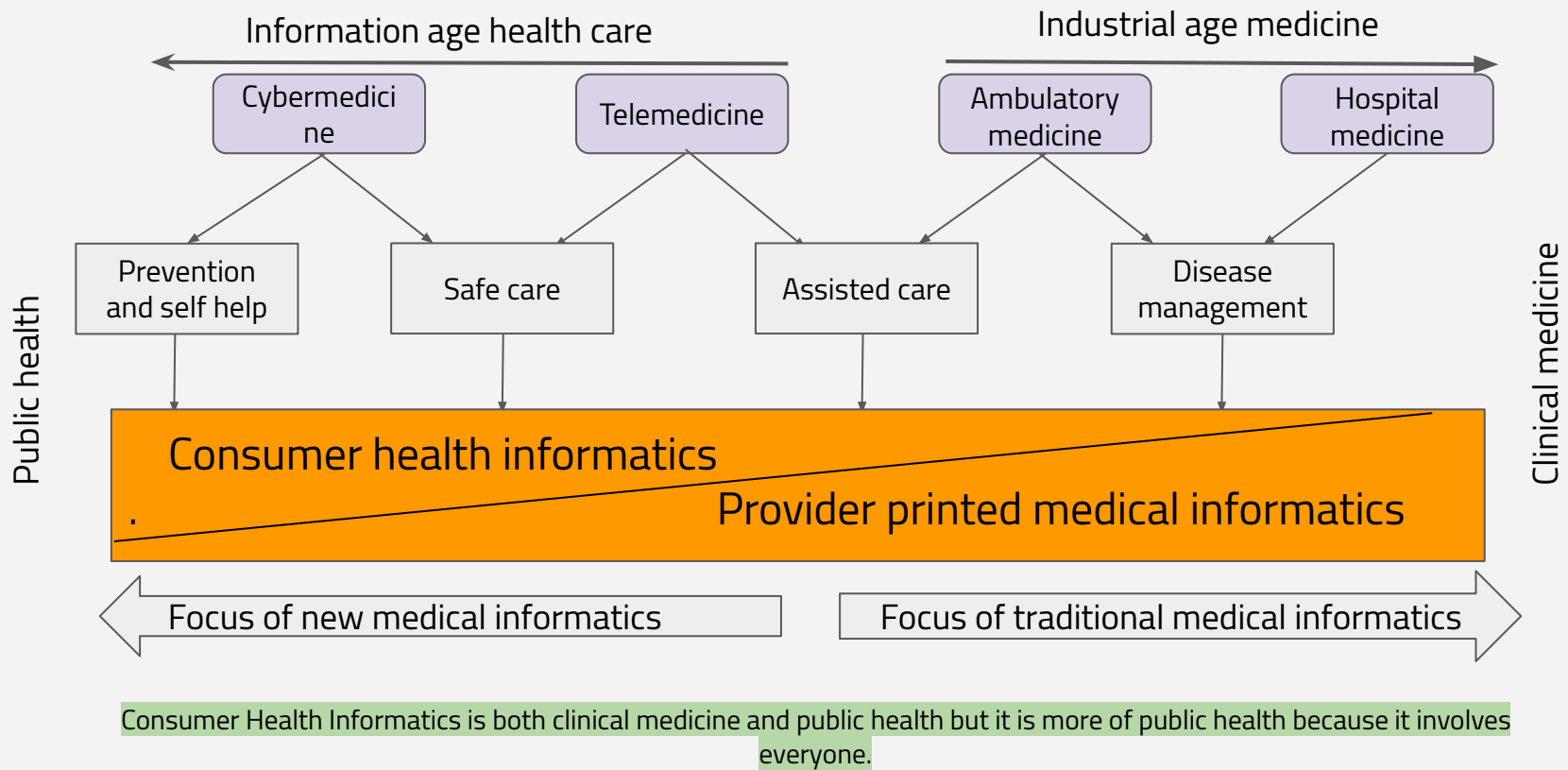
Doctor said: it's an explanation of the above

❖ Integration of consumer health information and information technology in an environment (environment is your focus here not individuals) of shared healthcare **decision-making** that supports effective **self-health action**.

❖ **Consumers? Very important**
  ● More broader than patient it may include the well and caregivers. Because consumers have more needs while patients they only need medical care. Also, consumers could be your future 'patients'
  ● It is a very diverse group.

Your Health Information, Your Rights

- **The focus of traditional health care and medical informatics is shifting from health professionals to consumers**

Information age health care        Industrial age medicine

| Cybermedicine | Telemedicine | | Ambulatory medicine | Hospital medicine |

Public health | Prevention and self help | Safe care | Assisted care | Disease management | Clinical medicine

**Consumer health informatics**

**Provider printed medical informatics**

Focus of new medical informatics      Focus of traditional medical informatics

Consumer Health Informatics is both clinical medicine and public health but it is more of public health because it involves everyone.

**Biomedical Informatics**       It mentioned in the 1st lecture

- Biomedical Informatics: (BMI ) is the **interdisciplinary** field that studies and pursues the effective uses of biomedical data , information, and knowledge for scientific inquiry, problem solving , and decision making, driven by efforts to improve human health . E.H. Shortliffe and Marsden S. Blois 2014.

- Biomedical informatics in perspective:

| Basic research | Applied Research And Practice<br>Biomedical Informatics Methods, Techniques, and Theories | | | |

**Health  informatics**

| applied research: | Bioinformatic | Imaging Informatics | Clinical Informatics | Public Health Informatics |
|---|---|---|---|---|
| | Molecular and Cellular Processes | Tissues and Organs | Individuals (Patients) | Populations And Society |

# Empowered Consumers

❖ **Empowerment**: **very important!**

> Granting of power to a dependent group or enhancing an individual's ability for self determination. It is a holistic approach

> "a **social process** of recognizing, promoting and enhancing people' abilities to meet their own needs, to solve their own problems, and mobilize the necessary resources in order to feel in control of their lives". (Gibson , 1991)

❖ Consumers Health Informatics applications support the empowered consumers concept (a power balance in the patient-health professional relationship) by e.g. :

✓ Providing Informing about health concerns. SMART information
✓ Assisting in finding others with **similar concerns**.
✓ Assisting in navigating the healthcare system and services.
They will not be able to be part of decision making if they are not having the access
✓ Access to clinical records and personal care management tools.
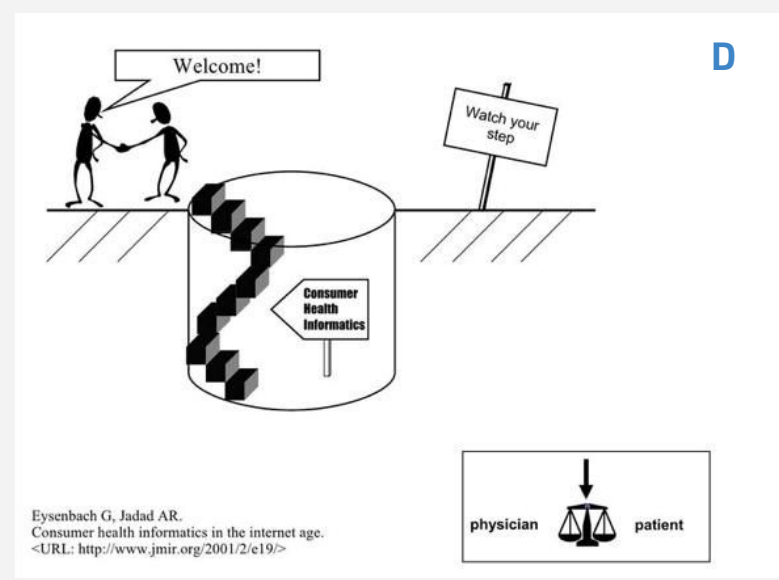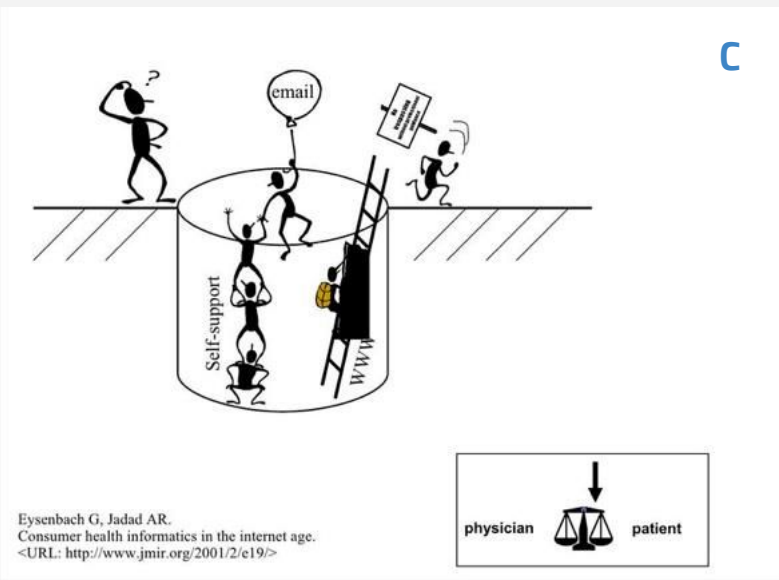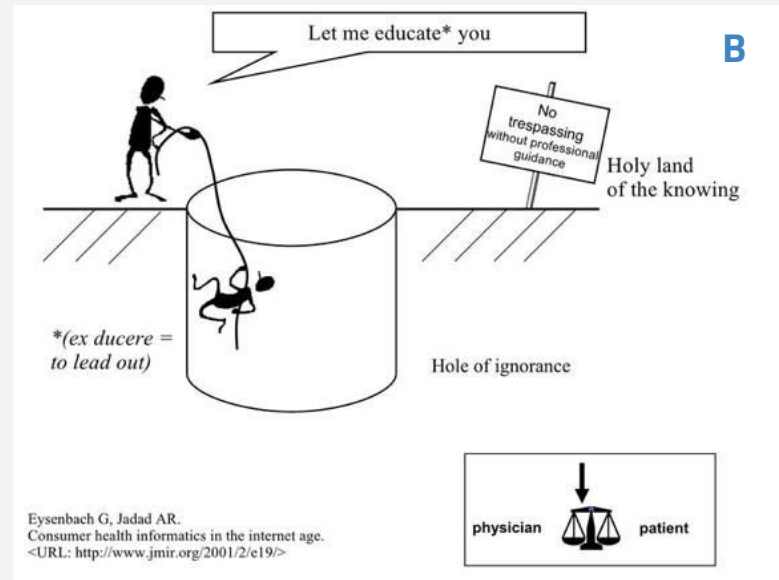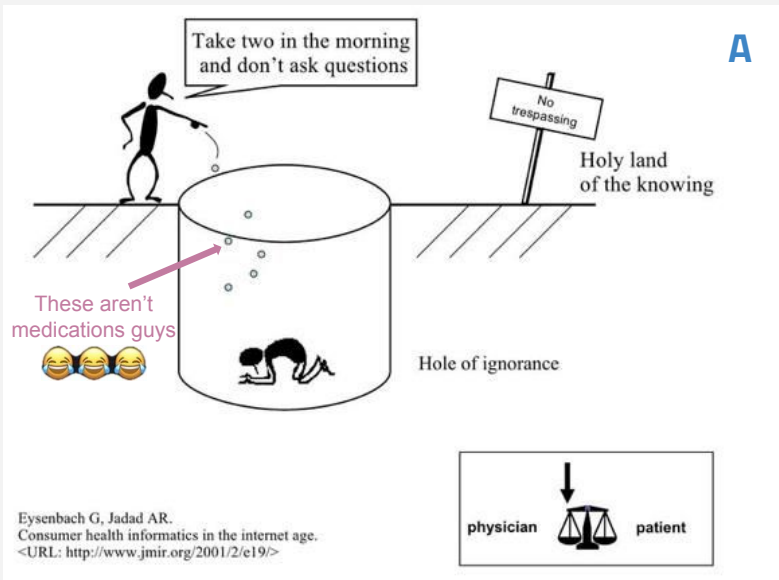
# Consumer Health Informatics (CHI)

❖ **History of CHI :** Doctor skipped it

- Consumer movement of 1970s.
  - **Increased demand for information.**
  - Greater **participation** in "medical" decision making.
- Prominence of "**self-help**" phenomenon of 1980s.
  - Huge increase in health information for lay audience.
- Widespread use of the **Internet**.
  - Increased dramatically throughout 1990s.

❖ **CHI Continuum :** Doctor skipped it

| Provide information | Access to personal medical information | Communicate with providers | Obtain education/ information/ treatment | Give/receive support |

⟵ Degree of Consumer Autonomy ⟶
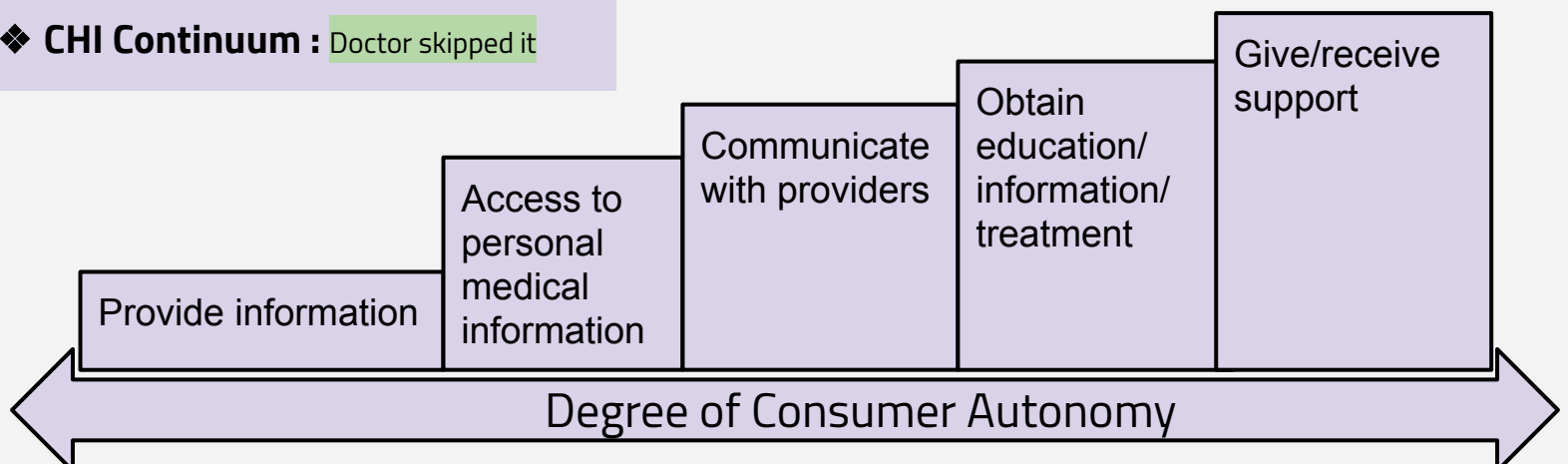
❖ Degree of consumer autonomy:

**Pic A:** in 1960s and and below, the relationship was bad that there was not any balance. No education for the consumer.
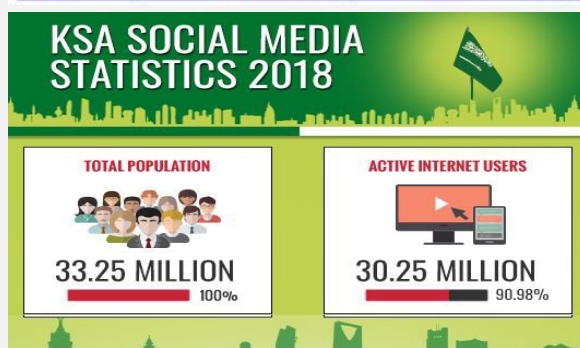**Pic B:** There is basic education; not well established.
**Pic C:** explosion of access methods to knowledge; people have knowledge but not able to understand and put it into context.
**Pic D:** CHI development to bridge the gap between clinician and patients.

| YEAR | Users | Population | % Pop. | Usage Source |
|------|-------|------------|--------|--------------|
| 2000 | 200,000 | 21,624,422 | 0.9 % | ITU |
| 2003 | 1,500,000 | 21,771,609 | 6.9 % | ITU |
| 2005 | 2,540,000 | 23,595,634 | 10.8 % | C+I+A |
| 2007 | 4,700,000 | 24,069,943 | 19.5 % | ITU |
| 2009 | 7,761,800 | 28,686,633 | 27.1 % | ITU |
| 2010 | 9,800,000 | 25,731,776 | 38.1 % | ITU |

**KSA SOCIAL MEDIA STATISTICS 2018**

TOTAL POPULATION
33.25 MILLION
100%

ACTIVE INTERNET USERS
30.25 MILLION
90.98%

In Saudi Arabia, the access to internet had jumped dramatically from 1% to almost 91% so we have good access and that can be used in implementing CHI
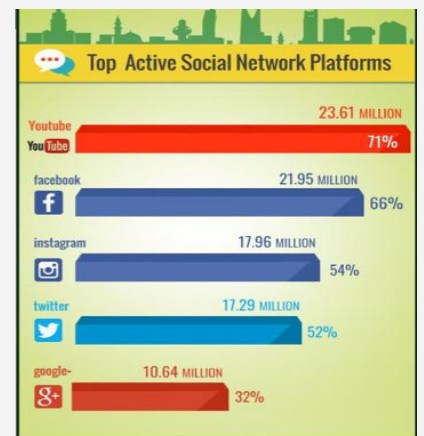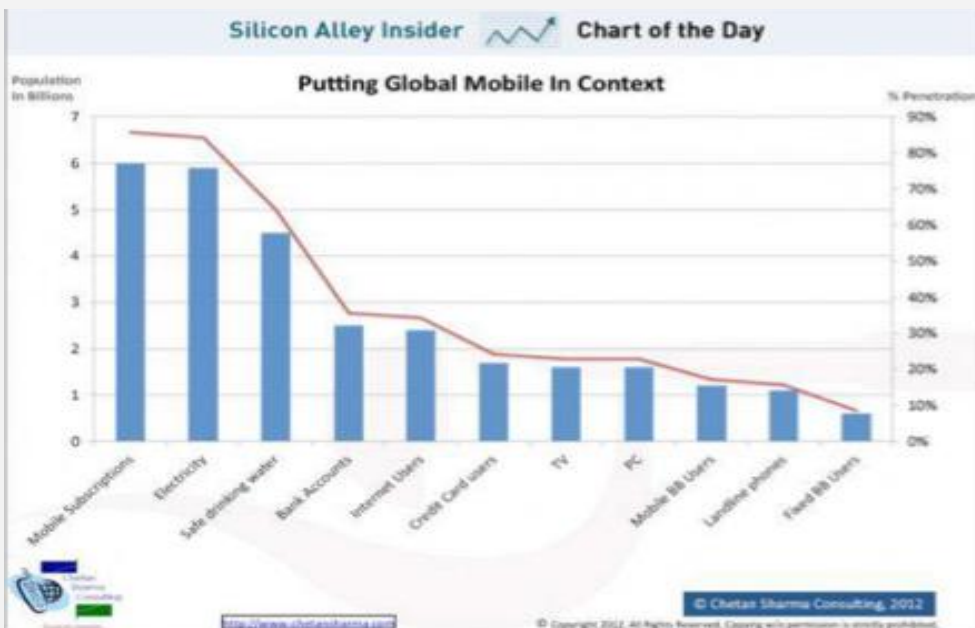
# Mobile health

- M-health or Mobile health is a term used for the practice of medicine and public health, supported by mobile devices. The term is mainly used in reference to using mobile communication devices, such as **mobile phones**, tablets and **PDAs**, for **health services** and information.

- The mobile Health is a sub-segment of **eHealth**,

- The mHealth market earned revenues of $230 million in 2010 and is estimated to reach **$392** million in 2015 in USA, according to a new report from research firm Frost & Sullivan.

Mobile is the most Pervasive technology ever invented

### Silicon Alley Insider — Chart of the Day

**Putting Global Mobile In Context**

Population in Billions / % Penetration

(Mobile Subscriptions, Electricity, Safe drinking water, Bank Accounts, Internet Users, Credit Card users, TV, PC, Mobile BB Users, Landline phones, Fixed BB Users)

© Chetan Sharma Consulting, 2012

### Top Active Social Network Platforms

| Platform | Users | % |
|---|---|---|
| Youtube | 23.61 MILLION | 71% |
| facebook | 21.95 MILLION | 66% |
| instagram | 17.96 MILLION | 54% |
| twitter | 17.29 MILLION | 52% |
| google+ | 10.64 MILLION | 32% |

### The mHealth Opportunity

**7 Billion People**

**By 2014 More mobile phones than people**

Expanding the coverage and reach of critical health information and services and moving towards citizen-centered health and well-being

### Top Active Social Chat Apps & Messengers

| App | % | Users |
|---|---|---|
| whatsapp | 73% | 24.27M |
| fb messenger | 40% | 13.30 M |
| snapchat | 39% | 12.97 M |
| skype | 24% | 7.98 M |

# Health information on the internet

**The quality of health information on the internet rests on <u>four pillars</u>:**

1. **Educating** the consumer
2. Encouraging the **self regulation** of providers of health information
3. Having **third** parties evaluate the information
4. **Enforcing** consents in cases of dissemination of fraudulent or harmful information.

## CHI

**Consumer Health Informatics:**
- consumer or patient views.
- patient-focused informatics,
- health literacy and consumer education.
- health information literacy,
- consumer-friendly language,
- personal health records, and Internet-based strategies and resources.

**Consumer health informatics can be organized into three general systems that:**
- provide health information to the user (one-way communication)
- tailor specific information to the user's unique situation (customized communication)
- allow the user to communicate and interact with healthcare providers or other users (two-way communication)

## Consumer Health Informatics Systems

**One-way communication:**
CD-ROMs, online health articles
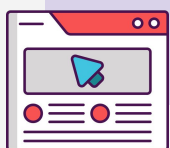
**Tailor**: automated systems that obtain information from the consumer about his or her general health or other health-related factors (such as family disease histories and smoking habits) and, on the basis of this information, suggest a need for preventive health procedures (such as mammograms), or identify actions to curb high-risk behaviors.

**Two-way communication:**
electronic mail, electronic bulletin boards, online discussion groups.

**CHI**
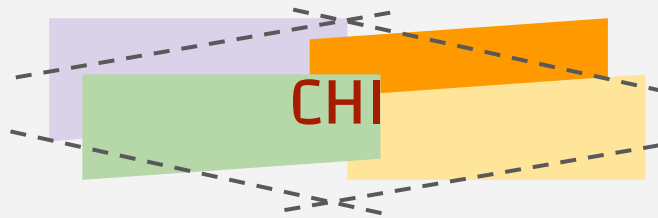
**Roles of Health Professionals in CHI**
- Professionals serve as sources of content
- Professionals provide important guidance in moderating public electronic discussion groups and responding to patients' electronic messages
- Clinicians become information **brokers** and interpreters for patients.

**a shift in consumer preferences and behaviors from face-to-face interactions to technology-based platforms.**

**Where clinical IS and Consumer health informatics meet?**
- **Patient Portals:** Patient interface to clinical information systems.
  Portal is a set of different applications.

- **Personal Health Record:** Internet based- set of tools that allows people to access and coordinate their life-long health information and make appropriate parts of it available to those who need it.



https://www.grandviewresearch.com/industry-analysis/e-health-market

**CHI**
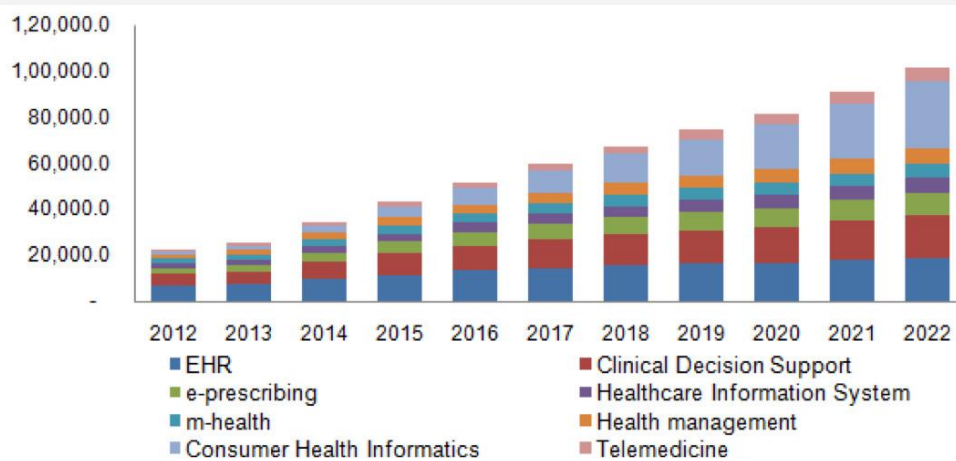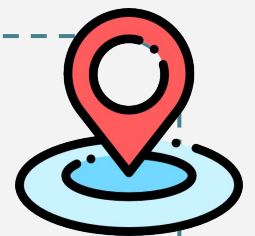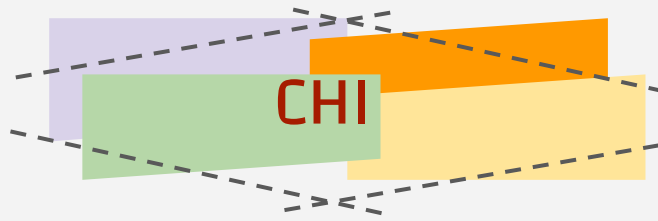
**Patient Centric Healthcare** it's like EBM

"care that is respectful of, and responsive to, individual patient preferences, needs, and values´ and that ensures that patient values guide all clinical decisions."

This definition highlights the importance of clinicians and patients working together to produce the best outcomes possible.

Crossing the Quality Chasm, IOM

**Patient / People Engagement**

WHO defines People Centered Care as:

"Care that is focused & organized around the health needs & expectations of people & communities rather than on disease"

**Characteristics of Patient Centered Care**

- **Respect** for patients values, preferences & needs
- **Coordinated** and integrated care
- **Information**, **Communication** & **Education**
- **Physical Comfort**
- **Emotional Support**
- **Involvement** of family & friends social support
- **Continuity** of care
- **Access** to care

Picker Institute-Multi Year Research Project
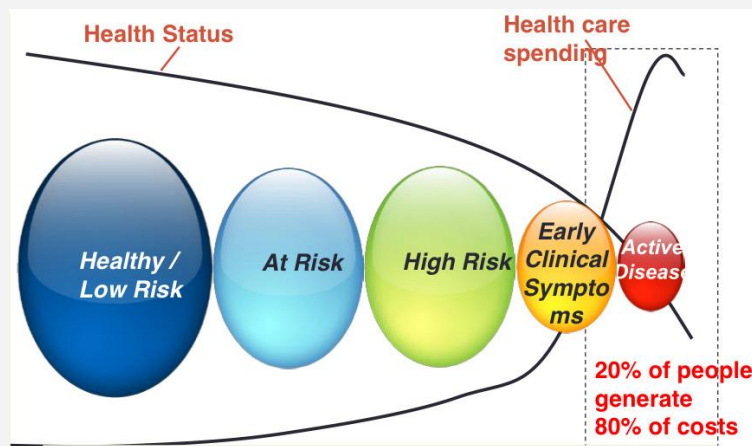'Through the Patient's Eyes: Understanding and Promoting Patient-Centered Care"
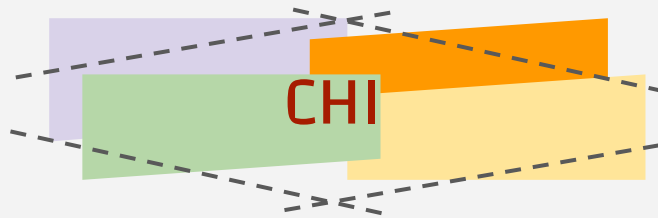
**It's a Different Ball game**

In an eHealth environment, **Information Moves** rather than the Physician or the Patient

eHealth
**ePhysician - eConsumer**

**Is 3At the Point of Care´ Too Late?**



- Early detection of at-risk patients. Chances of being treated is less in the early clinical symptoms phase
- Provide personalized evidence to enable pro-active decision

**Actions**

- Technology victories and chronic disease, e-Health takes a prominent role in the management of healthcare
- To aggregate rather than segregate healthcare system
- Consumer health education and empowerment
- Preventive medicine takes precedence over treating the sick
- Focus on vulnerable members of society

# Book Summary

## The Challenge of Improving Consumer Engagement:

- consumers serve as their own case managers, brokering care from generalists, specialists, and ancillary groups. Rarely do consumers receive all of their clinical services from a single provider.
- the view of the patient from a single electronic health record often will not include a record of services provided through the continuum of care.
- the inability to access this record may represent a barrier to optimal care delivery.
- Patient engagement is not purely driven by the patient.
- consumers may become engaged because of an innate desire to be rewarded by participation or through external rewards.

## The Challenge of Improving the Information Available to Consumers:

- The advent of the Internet, **interactive television** and a host of widely available home technologies provide a rich source of tools to address this challenge.

## The Challenge of Improving Consumer Decision-Making:

- Patients relied on conversations and advice from family, close friends, church members, other patients, or doctors.
- They made decisions with no attention given to the evidence supporting each treatment alternative without recognizing their own personal characteristics that might impact the outcome of the chosen approach.

## Historical Perspective of Consumer Health Informatics:

1. The rise if consumer-oriented health communications.
2. Early advances in consumer information sharing and decision making.
3. Early advances in consumer-consumer communication.early advances in consumer decision-facilitation

## Current Trends:

- **Consumer-Facing Software.**

| Mode of engagement | Definition | Examples |
|---|---|---|
| Communication | Support for patient-to-patient, computer-to-patient and patient-to-provider knowledge or information dissemination | 1. Patient portals<br>2. Patient-physician secure email online support groups<br>3. Social networking sites |
| Data Storage | A patient-centered and managed repository for patient-entered data or "liquid" health-related information | 1. Personal health records<br>2. Data portals for device, health systems and pharmaceutical companies |
| Behavior Management | Tools to support personal health goals, often by combining data storage, care protocols, information dissemination, and communication | 1. Weight management<br>2. Physical activity tools<br>3. Medication reminder system |
| Decision Aids | Prepare people to participate in 'close call' decisions that involve weighing benefits, harms, and scientific uncertainty | 1. Interactive tools for breast Ca, Prostate Ca, Back Pain, End of Life, Heart Disease |

- **Communication:**
  1. Patient centered communication
  2. Electronic support groups
  3. Social networks
- **Patients Access to Health Information**
  1. Portals
  2. Personal health records
  3. Personally controlled health records
- **Behavior Management**
- **Consumer Decision-Making**
- **Consumer Information Access**
  1. Passive information access
  2. Active information access

# Book Summary

## Opportunities and Challenges

- Health information technology for economic and clinical health act of 2009
- Information credentialing
- Privacy and security
- Technology digital divide
- Workflow integration

## Future Directions

- Home computing power
- Patient communication
- Data information knowledge

# Questions

**1. Insures that the patient has access to information resources necessary to participate fully in the health care process:**
A. Telemedicine
B. health informatics
C. consumer health informatics
D. bioinformatics

**2. What is the main reason influencing physician to use smart phones rather than feature phones:**
A. Available application
B. Battery life
C. Internet and email access
D. Multimedia capability

**3. electronic records that are owned, maintained and updated by an individual is known as which of the following:**
A. Patient Health Education Record
B. Personal Health Record
C. Electronic health record
D. Electronic Medical Record

**4. Consumer health informatics is as Integration of:**
A. Human Resources and information technology
B. Human Resources and health information
C. Consumer health information and information technology
D. Consumer health information and financial services

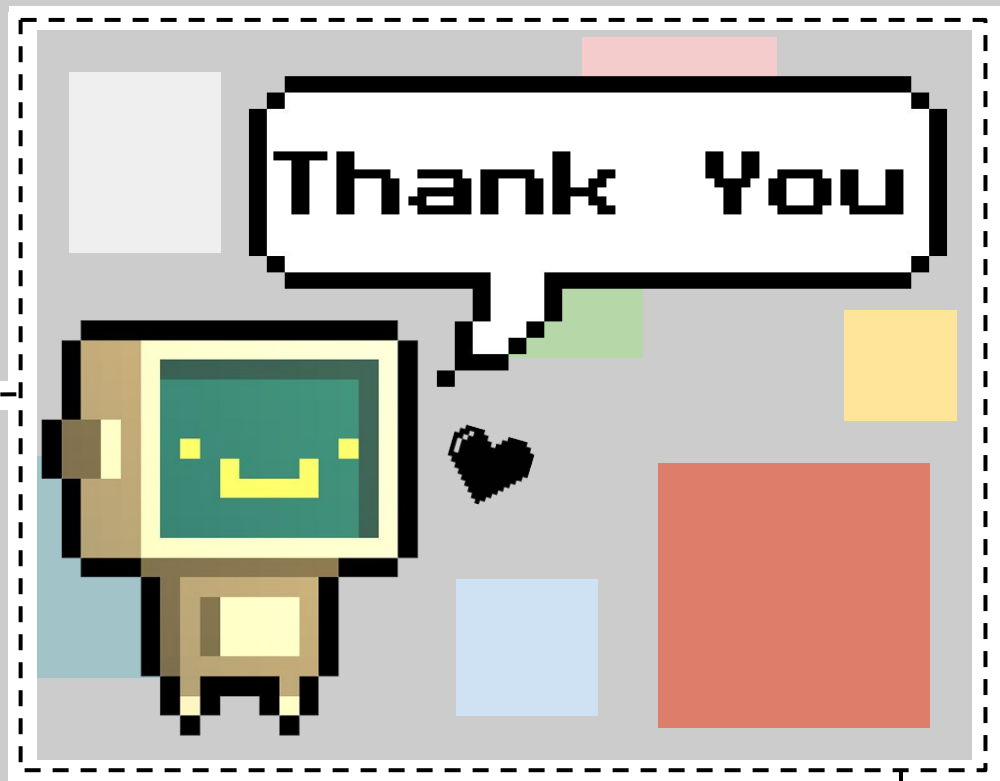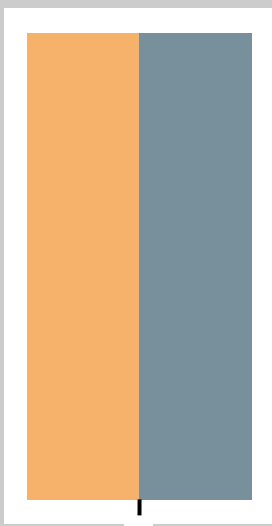**5. The mobile Health is a sub-segment of:**
A. telemedicine
B. eHealth
C.telehealth
D.EHR

**6. Informing the patient that smoking can increase the risk of CVD is:**
A.one-way communication
B. customized communication
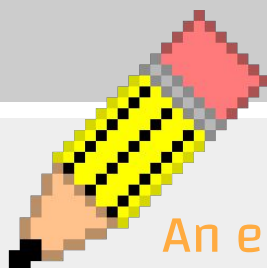C. two-way communication
3- three-way communication

1.C
2.A
3.B
4.C
5.B
6. A

# Thank You

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