

WEB 2.0 and Medicaid: **Active Collaboration for Better Health Outcomes**

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Web 2.0 and Medicaid: Active Collaboration for Better Health Outcomes

- Web 2.0 is quickly gaining momentum in the healthcare industry.
 - ▣ Is it hype or is there substance behind the social networking buzz in healthcare?
 - ▣ Are there practical applications in Medicaid?
- This session will provide an objective discussion of Web 2.0 technology and outline its potential for the Medicaid community.

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Quotable Quotes



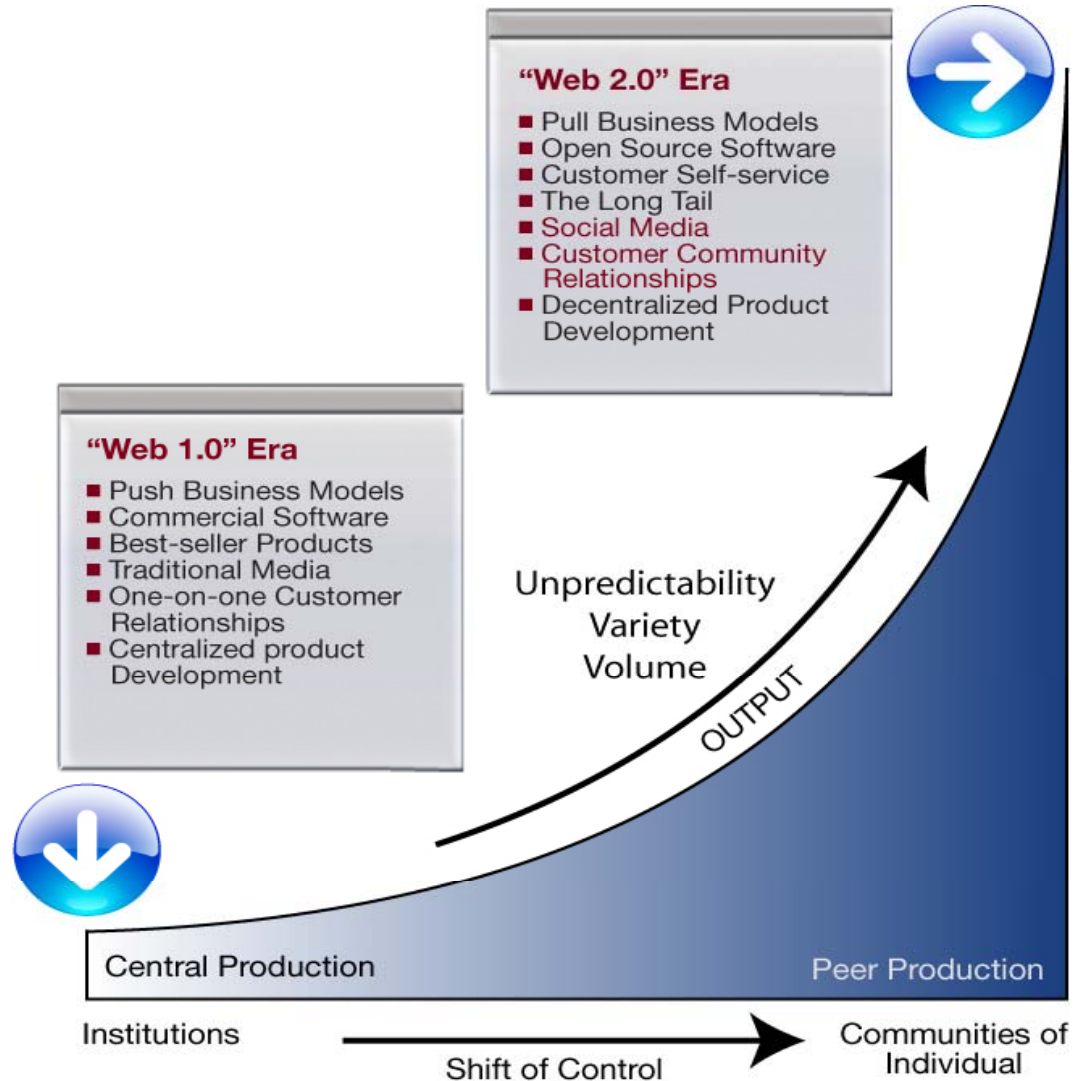
- “Community is the killer app in health care”- Steve Case at the World Health Congress, December 2007
- “Groups are remarkably intelligent and often more smarter than the smartest people in them”- James Surowiecki, The Wisdom of Crowds.
- New Movement called Health 2.0
 - ▣ “Use of Social software and its ability to promote collaboration between patients, medical professionals , caregivers and other stakeholders in health”
- Just Wait Web 3.0 and /or Health 3.0 is knocking at the door.

Web 2.0 : A Brief History



- ❑ December 1997: Jorn Barger coins the phrase weblogs.
- ❑ January 1999: 23 Weblogs exist
- ❑ January 15, 2001: Wikipedia launches
- ❑ 2003: MySpace is founded
- ❑ Feb, 2004: Flickr is launched
- ❑ January 2004: 3 million web logs created
- ❑ October 2004: Web 2.0 term coined by O'Reilly
- ❑ August 2006: 100 million MySpace page created

Web 1.0 to Web 2.0 Transition




Web 1.0 vs. Web 2.0



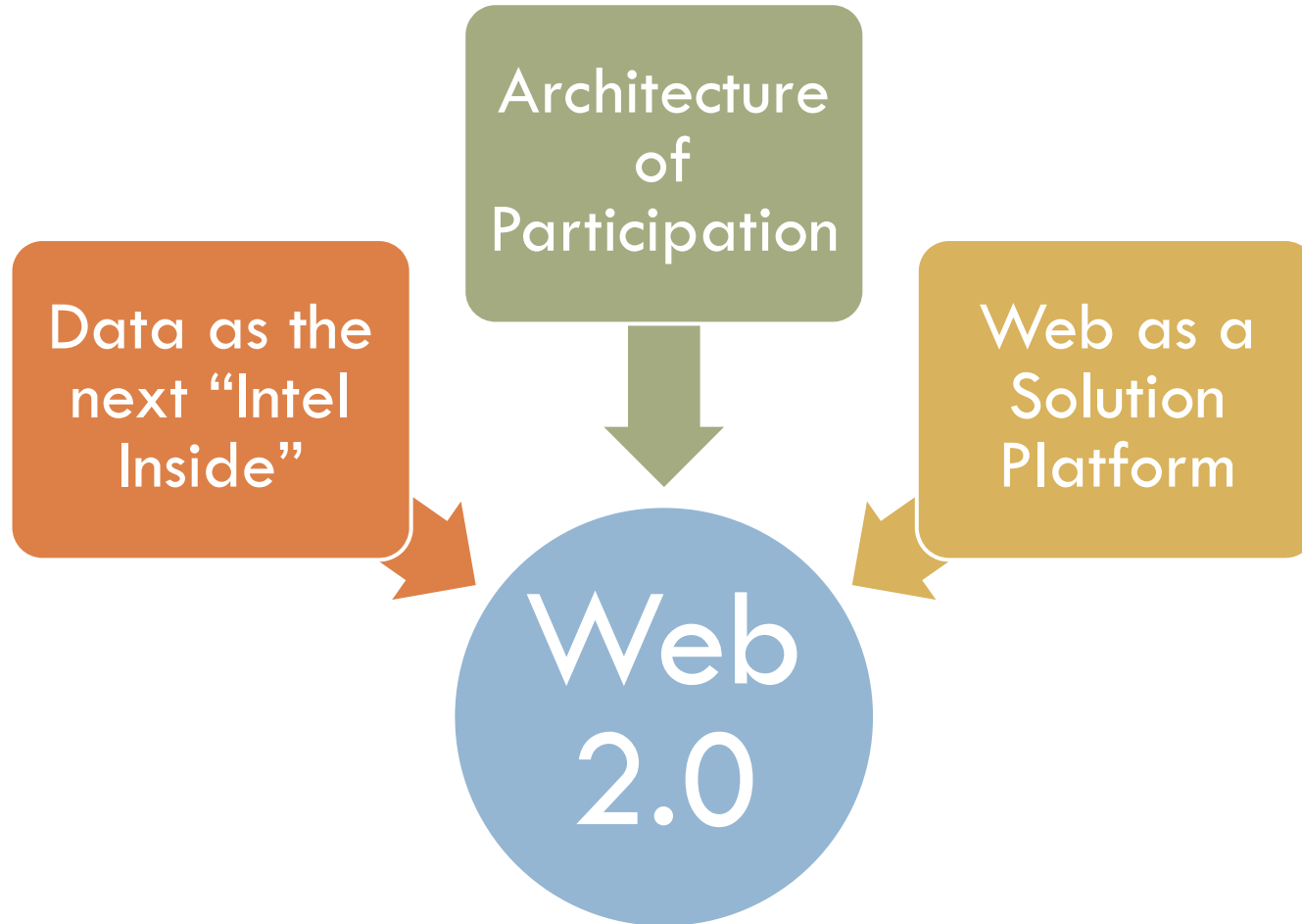
- Web 1.0 was about reading, Web 2.0 is about writing
- Web 1.0 was about companies, Web 2.0 is about communities
- Web 1.0 was about client-server, Web 2.0 is about peer to peer
- Web 1.0 was about HTML, Web 2.0 is about XML
- Web 1.0 was about home pages, Web 2.0 is about blogs
- Web 1.0 was about portals, Web 2.0 is about RSS
- Web 1.0 was about taxonomy, Web 2.0 is about folksonomies
- Web 1.0 was about wires, Web 2.0 is about wireless
- Web 1.0 was about owning, Web 2.0 is about sharing
- Web 1.0 was about web forms, Web 2.0 is about RIA
- Web 1.0 was about screen scraping, Web 2.0 is about services

Web 1.0 vs. Web 2.0 Examples



Web 1.0	VS.	Web 2.0
DoubleClick	-->	Google AdSense
Ofoto	-->	Flickr
Akamai	-->	BitTorrent
mp3.com	-->	Napster
Britannica Online	-->	Wikipedia
Personal Websites	-->	Blogging
Evite	-->	Upcoming.org and EVDB
Domain Name Speculation	-->	Search engine optimization
Screen Scraping	-->	Web Services
Publishing	-->	Participation
Content Management Systems	-->	Wikis
Directories (taxonomy)	-->	Tagging ("folksonomy")

WEB 2.0 Core Principles



Web as a Platform

Software as a Service

- **Software as a service (SaaS)**, typically pronounced 'Sass' is a model of software deployment where an application is hosted as a service provided to customers across the Internet

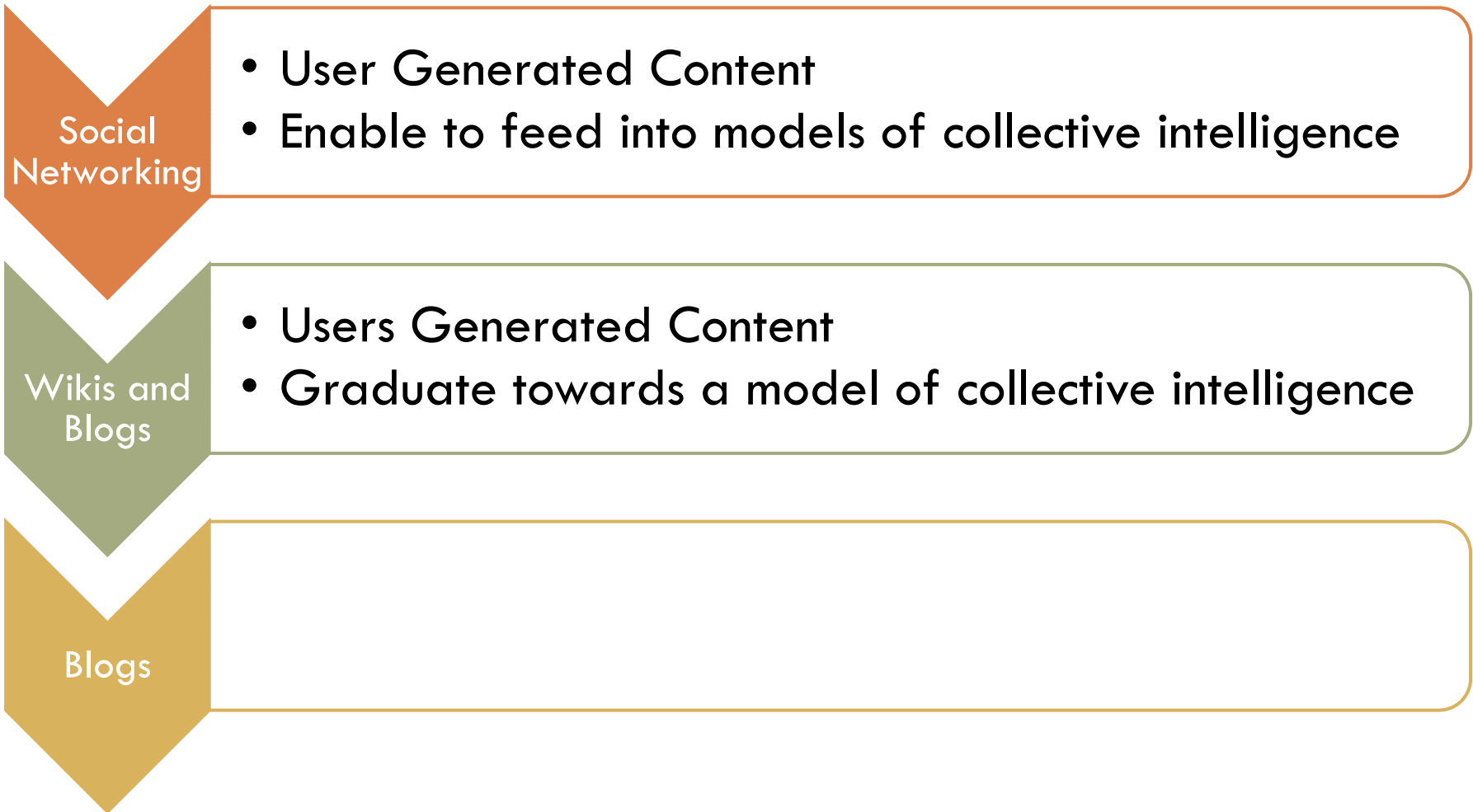
Rich User Experiences

- **Rich Internet applications (RIAs)** are web applications that have the features and functionality of traditional desktop applications. RIAs typically transfer the processing necessary for the user interface to the web client but keep the bulk of the data (i.e. the state of the program, the data, etc.) back on the application server
- AJAX/XHTML

New Business Models

- Composite applications
- Mashups

Architecture of Participation





Web 2.0 as a Platform

Personal Health Application (PHA) Platforms,
Personally Controlled Health Record (PCHR)
platforms, SaaS, Rich Internet Applications, New
Business Models

Software and Services



- Software implementation and delivery model will fundamentally shift
 - ▣ Software will be available as services (SaaS)
 - Reduced cost of ownership
 - Reduced risk of transition of changes
- Development of systems will be modeled around reusability and assembly than grounds up development

Personally Controlled Health Record Platforms

- The growing adoption of Web 2.0 technologies and approaches coincides with the more recent emergence of:
 - ▣ Personal Health Application (PHA) Platforms, which are also called Personally Controlled Health Record (PCHR] platforms or
 - ▣ “Health Record Banks”) such as Google Health, Microsoft HealthVault, and Dossia, where data at the request of the consumer is pulled from various sources including Electronic Health Records (EHR)
- Mandl and colleagues in the *New England Journal of Medicine* state that these developments represent “tectonic shifts in the health information economy” [1] with far-reaching consequences for patient involvement, as the gravity shifts away from health care providers as the sole custodian of medical data.
- This represents a “disruptive innovation that inverts the current approach to medical records in that they are created by and reside with patients who grant permission for their use to institutions, clinicians, researchers, public health agencies, and other users of medical information” [1]

Personally Controlled Health Record Platforms

- *Personal Health Records allow users to share their electronic health record with other users. This generates new levels of patient participation. It provides opportunities for patients to be more engaged in their health, health care services, and health research, by connecting also patients with informal and formal caregivers, health professionals, and researchers.*
- *Personal Health Records also creates complex Privacy issues. For example, patients may be unaware of the fact that web-information is often permanently archived and may be accessible long-term by future employers as an example [2]. Little is known about the actual consumer awareness of these privacy and “persistence” issues, in particular when it comes to young participating users [3].*

Rich Interface Applications

The screenshot displays a web-based interface for a General Practitioner (GP) practice. The browser window title is "MS CUI Patient Journey Demonstrator - Primary Care - Windows Internet Explorer". The URL is "http://www.msca.net/PatientJourneyDemonstrator/PrimaryCare.aspx". The page is titled "1. GP landing page" and includes a "Show Guide" button. The user is logged in as "Doctor: COX, Oliver (M)" with an "Inbox (12)", "Pending (8)", and "Patients Today (96)" indicator. The date is "Thursday 8th May 2008".

The interface is divided into several sections:

- COX, Oliver (Dr):** Shows a profile picture and a list of appointments for the day, including "SUGAOTE, Delphine (Miss)" at 9:10 AM and "JOHNSON, Brian (M)" at 9:50 AM.
- Email Inbox:** Connected to Microsoft Exchange, showing a list of emails from "KHOURY, Michael (M)", "ISBERT, Erik (M)", "MACAGNO, Maurizio (M)", and "CULLIN, Chris (M)".
- Reports:** Lists recent reports for patients like "OVSEN, Michael (M)", "RICHARDSON, Don (M)", "ESBERT, Erik (M)", "SLOLOM, Cienn (M)", "YANG, Chen (M)", and "SLOLOM, Cienn (M)".
- Repeat prescription requests:** Shows requests for "STEEN, Heidi (Ms)" and "MISEC, Anna (Ms)".
- Practice Noticeboard:** Contains messages such as "Quarterly Reports to be submitted to GIBBONS, PNI (Dr) by the end of March" and "Seminar on cancer research financing is to be postponed until next week".
- Knowledge Support:** Provides links to "NHS Medical Search" and "National Library for Health".
- Health News:** Features articles like "Stem cell hope for bone fractures" and "Brain drug target discovery in MS".

- Applications have no longer limitations of traditional web 1.0 applications
- Allows quick user feedback to
- Content will be no longer just static data but other forms of data using podcasts, video feeds, RSS

New Business Models

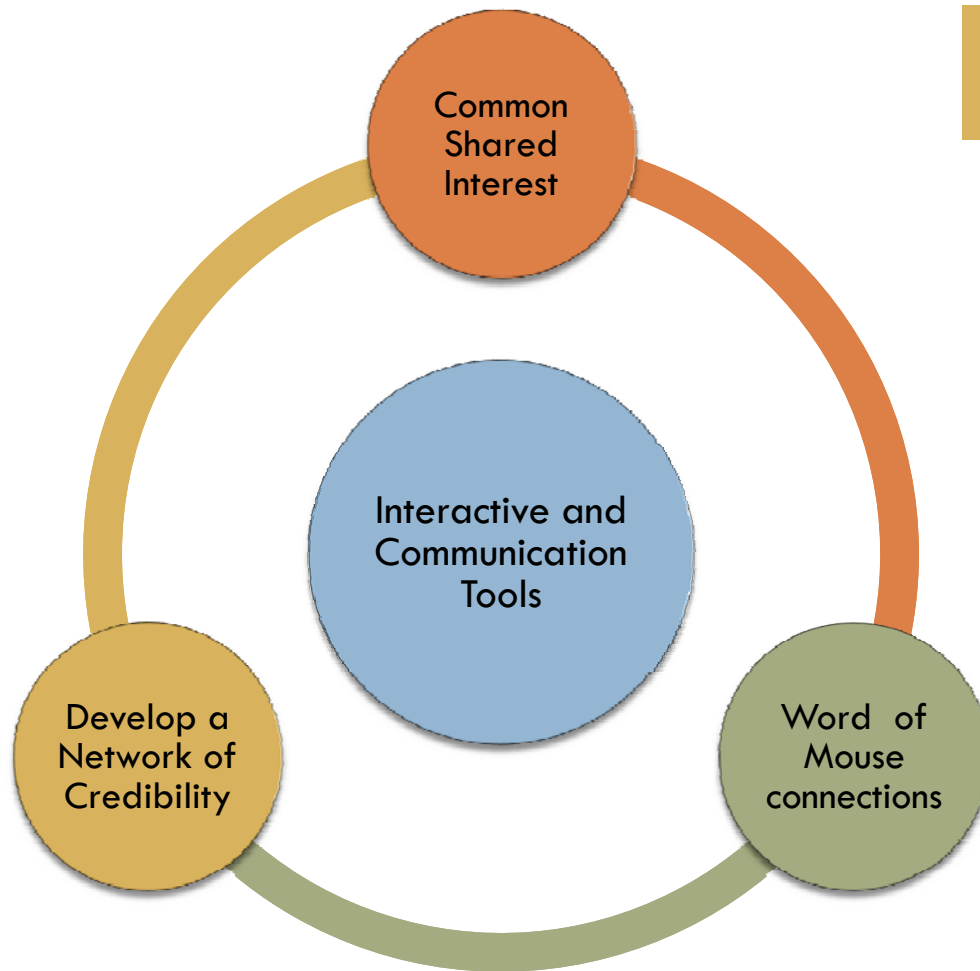
- Mash ups
 - Strong preference for reuse
 - Simple easy to use web technologies put together in innovative ways
- Who is sick is a public health mash up using consumer driven (social networking) health information and Google maps
 - <http://whoissick.org/sickness/>
- Personal Health Record is another classic example of using mash up technologies.



Architecture of Participation

Social Networking

Social Networking



Simple but powerful phenomenon of connectivity

- ❑ MySpace. Com an online community that lets you meet your friends' friends and colleagues.
- ❑ A single profile can generate a little "world" of people who have similar interests, with these worlds eventually overlapping with other worlds.

Social Networking Tools



- Dedicated sites based on specific interests
 - ▣ Use of social software such as chat, messaging to build communities around common interests
- Blogs
 - ▣ Enables user to record information(text, video, audio) and share it with others
- Online Forums
 - ▣ Allows users to post opinions on subjects of personal interest
- Podcasts
 - ▣ Help people create and share audio files
- RSS (Really Simple Syndication)
 - ▣ Rapidly disseminate and assemble information
- Wikis

Social Networking for Patients

- Patientslikeme.com
- MyCancerPlace.com
- Personal web pages
- Forums, polls, resources, galleries
- Disease-specific communities: Caring Voices
- Discussions among patients of rare disorders for better data collection and documentation
- Phase 4 monitoring of adverse events by pharmacy - faster, cheaper
- Discussion about outcomes among physicians involved in clinical research or practice (www.sermo.com)
- National web platform for providing support and clinical education to cancer survivors is an example and is one of the few online communities directly associated with an hospital. (www.CaringVoices.ca)

Wiki: What I know is

- A **wiki** is a page or collection of Web pages designed to enable anyone who accesses it to contribute or modify content, using a simplified markup language. Wikis are often used to create collaborative websites and to power community websites.
- "Wiki" (/wiːki/) is originally a Hawaiian word for "fast".
- Over 50 cataloged health care Wikis already exist
 - ClinInfoWiki.org
 - AskDrWiki.com
 - AIDS Wiki
 - Flu Wiki
- Categories of Wikis
 - Type of Contributors
 - Community being Addressed

Folksonomy

- **Wikipedia : Folksonomy** (also known as **collaborative tagging, social classification, social indexing, and social tagging**) is the practice and method of collaborative free keyword indexing by creating and managing tags to annotate and categorize content.
- **Folksonomies** allow the indexing of documents by everyone without following any rules
- In Web 2.0 services like *Del.icio.us*, *Flickr* or *YouTube* people collaborate while creating content and indexing the documents. Flickr is one of the earliest Web 2.0 applications. In addition to being a popular Web site for users to share personal photographs and is used as a photo repository.
- The system of organization developed in Delicious and Flickr was called a “folksonomy” by Thomas Vander Wal in a discussion on an information architecture mailing list (Smith, 2004). It is a combination of “folk” and “taxonomy.”
- In contrast to traditional subject indexing, metadata is generated not only by experts but also by creators and consumers of the content (so called “prosumer”), who combines the producer’s and consumer’s activities.
- An important aspect of a folksonomy is that it is comprised of terms in a flat namespace: that is, there is no hierarchy, and no directly specified parent-child or sibling relationships between these terms.
- There are, however, automatically generated “related” tags, which cluster tags based on common URLs. This is unlike formal taxonomies and classification schemes where there are multiple kind of explicit relationships between terms.

Folksonomy

- Issues:

- Aside the benefits of **folksonomies** there are severe problems, e.g. the tags' lack of precision

- Benefits:

- Until recently, the user of Medical information has been a passive consumer; he or she does not play an active role regarding indexing of scientific documents. With the aid of **folksonomies** the end user and reader in Medical science communication, is able to contribute to the indexing of Medical documents
- Currently professional science databases of the “old” information industry *MEDLINE* or *EMBASE* for **medicine**, *BIOSIS* for the life sciences and *Web of Science* or *Scopus* for academic sciences in general do not work with **folksonomies**. They make use of Discipline-specific databases which apply documentation languages with controlled terms (classification systems, thesauri, ontologies), e.g. the Medical Subject Headings (*MeSH*) in *MEDLINE*



Government and Public Sector

Web 2.0 Implementations

SAMHSA:

Homelessness Resource Center (HRC), a virtual community

Key Highlights

- Implementation of virtual community
- Use of social networking features
- Registered users can create profiles, comment on articles, and interact with each other, just as they would on Facebook or Myspace

Substance Abuse and Mental Health Services Administration

SAMHSA NEWS

SAMHSA's Award-Winning Newsletter

July/August 2008, Volume 16, Number 4



Homelessness Services: Web 2.0 Connects Providers Online

By Rebecca A. Clay

Web 2.0. It's the latest computer buzzword. But how can it be of use to service providers who work with people who are homeless?

Young and well educated, but overworked and underpaid, these providers operate in programs with few resources for expensive computer hardware.

But when they go home at night, they log on to their personal computers and visit Facebook and MySpace to relax and connect. Tech-savvy and computer literate, they are ripe for SAMHSA's Homelessness Resource Center (HRC), a virtual community located at www.homeless.samhsa.gov.

Using innovative Web 2.0 technology (see [What Is Web 2.0?](#)), SAMHSA's HRC gives service providers support—ways to share ideas, get advice, or just chat.

Web 2.0 and Assisted Living

- Assisted Living communities have relied on very traditional marketing means for securing residents. They establish strong relationships with the medical community through foot-on-the-pavement marketing. They build connections with churches, social organizations and senior-focused communities within their marketing footprint. Depending on their budgets they also will produce targeted direct mail campaigns, and attend or sponsor various senior events -- again, all within their marketing footprint.
- interactive resources such as blogging, electronic newsletters and community forums. By providing an interactive component to a website the potential customer has the ability to engage with not only the assisted living community, but also family members and other interested parties.

Noteworthy Endeavors using Web 2.0



- **Web 2.0: CDC invests in Second Life real estate**
- **CDC creates health eCARDS to create awareness. Use of social media to communicate and increase awareness.**
- Who is Sick? is a public health mash up using consumer driven (social networking) health information and Google maps. Just imagine the public health possibilities

Case Study : Believer in Wisdom of Crowds: Daniel Hoch, MD

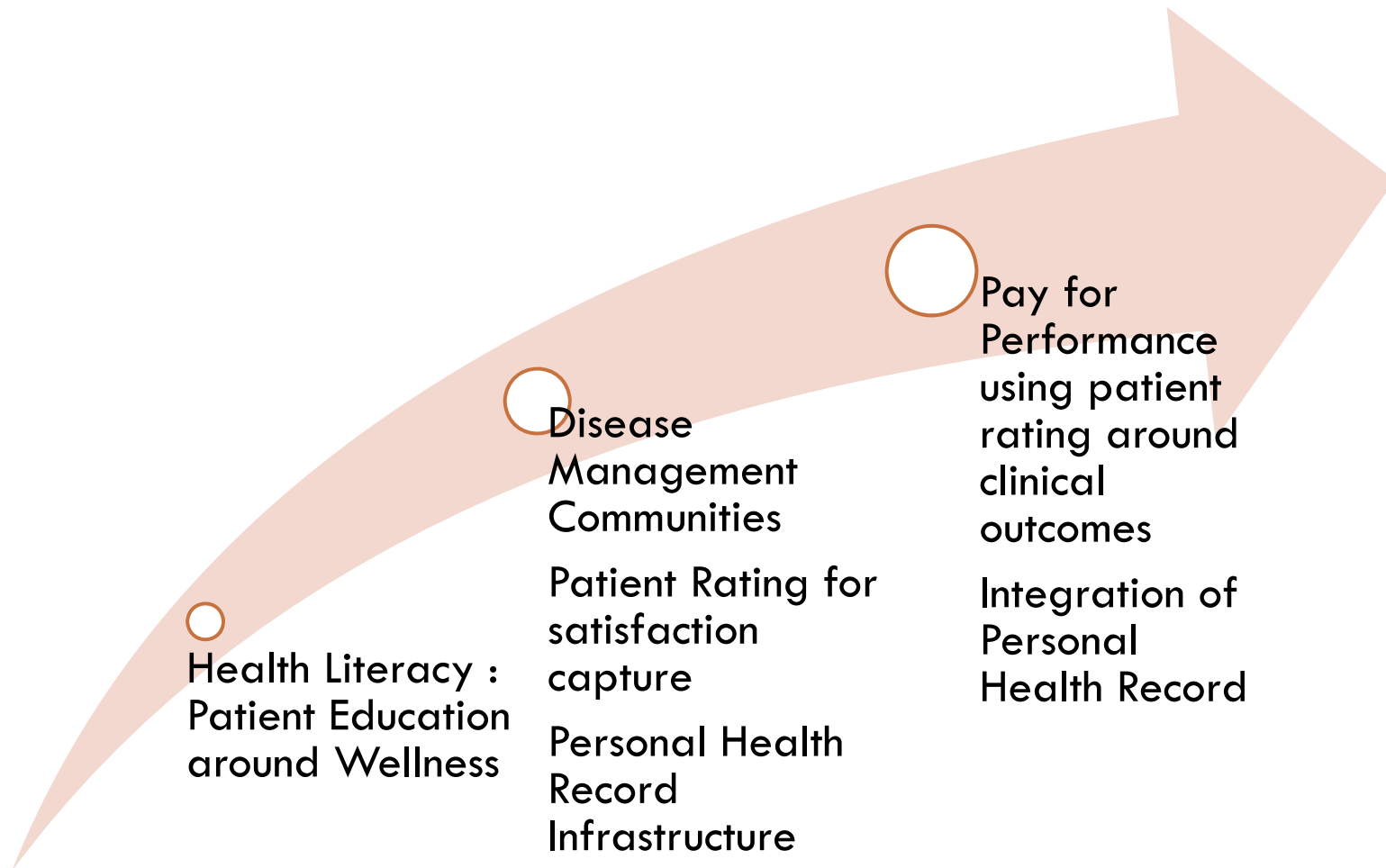
- Harvard Professor of Neurology.
- Patients with epilepsy meet online at Brain Talk Communities (a site founded by John Lester at Mass General Hospital)
- Several of patients directed his attention to an increase in EEG guided biofeedback to augment treatment of neurological disorders.
- Result: A new perspective with potential publication of new literature with several of the patients as authors



Web 2.0 and Medicaid:

Predictions

Medicaid and Social Networking



Health Literacy :
Patient Education
around Wellness

Disease
Management
Communities
Patient Rating for
satisfaction
capture
Personal Health
Record
Infrastructure

Pay for
Performance
using patient
rating around
clinical
outcomes
Integration of
Personal
Health Record

Health Literacy



- Health literacy is one of the most widespread obstacles to achieving better health outcomes in the United States
- Internet and communication tools that support the delivery of personalized health information and health literacy competency for Medicaid beneficiaries
- Graduate roll out of these initiatives
 - ▣ Education using more dynamic content on web sites (RSS, videocasts and podcasts)
 - ▣ Communities being managed and moderated for knowledge sharing

Ratings and Surveys



- Traditional Model vs. new Entrants: Vitals (www.vitals.com)
- Anthem Blue Cross and Blue Shield in Connecticut Launches Zagat Health Survey Tool
 - ▣ Consumers will be able to review their doctor visits based on:
 - Trust, Communication, Availability and Environment
- Feedback mechanism involves more participation in the decision making process

Disruptions through Collaborations



- Disease Management Programs augmented by establishment of communities for sharing of information and promote awareness
- Use of community based feedback into pay for performance models
- Personal health record supported and integrated in the overall decision making process

Challenges and Unknowns



- Sustainable business model or irrational exuberance
- Privacy and Security around sharing of data, experience and notes
- Building Trust is a laborious process
 - ▣ Is this person like me?
 - ▣ Is this person credible?



Leveraging Web2.0, Social Media, & the Culture of Participation in Your Organization, Team, or Community:

Benefits & Applications

Leveraging Web2.0, Social Media, & the Culture of Participation in Your Organization, Team, or Community: Benefits & Applications

- For Patients
 - ▣ As users of systems & applications
 - ▣ As participants in communities
 - ▣ As providers and consumers of vital information
- For Providers
 - ▣ Collaboration, teamwork, & community building
 - ▣ Knowledge & Information Sharing
 - ▣ Working more efficiently
 - ▣ Getting smarter faster
- For Healthcare Professionals
 - ▣ Informal collaborative interaction points between Dr. & patients
 - ▣ Access to peers and the greater Medicaid community
 - ▣ Promotes information sharing and reuse across community boundaries
- For Builders of Systems
 - ▣ SOA, SaaS, & developing for reuse
 - ▣ Public APIs & mashups
 - ▣ Web 2.0 for Project Management & Information sharing

Challenges



- Access & Accessibility
- Community building & the culture of participation
 - ▣ If you build it will they come?
- Top down or bottom up? BOTH!
- Security & privacy concerns.
- Proliferation of silos & monolithic projects
- Getting out of the web2.0 “echo chamber”
- Building systems that my mom and grandma can use

Practical Tips for Implementers



- Start small. Take bite sized pieces.
- Iteration & continuous process improvement
- Build a community of active participants and advocates and LISTEN to them.
- Remember, it's not the technology that is the true “special sauce” behind web2.0. It's the PEOPLE!
- By whatever means necessary, but remember - web2.0 is NOT a silver bullet!

Futures



- Computing in the clouds
- Microblogging
- Geo and location-based communities and social networks
- Telepresence & next gen telemedicine
- Semantic web applications (web3.0 and beyond)

Summary



- Ultimately, the whole community has to decide through their collective wisdom whether Web 2.0/Health 2.0/Medicine 2.0 will deliver value and embrace it