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WEB 2.0, HEALTH 2.0, AND  
PHARMACY EDUCATION:  
OPPORTUNITIES FOR  
PHARMACY EDUCATORS TO  
REACH MILLENNIAL STUDENTS

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Objectives

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1. Describe the common Web 2.0 technologies that students use.
2. Describe three applications of Web 2.0 to pharmacy education.
3. Describe three examples of Health 2.0.
4. Participate in an active, real-time Web 2.0 social experience.

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Web 2.0

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## Web 2.0

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- Web 1.0
  - ▣ Three “Cs”
- Web 2.0
  - ▣ Online applications
  - ▣ Openness among users
  - ▣ Openness among other applications
  - ▣ Social connections
  - ▣ Collective intelligence
- Health 2.0

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## Social Bookmarking

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- Identification → describe → tag → store → share
- Online storage provides access anywhere
- Apomediation through colleagues or topics
- Contacting the “taggers”
- Limitation of tag standardization
- Delicious.com, Technorati.com, Connotea.com
  
- In the “classroom”
  - ▣ Community of shared sites as a resource or a course requirement

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## Podcasts, cont.

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- Current activities
  - CE, journals, news
- In the “classroom”
  - Class recordings; pre-class information; student presentations; patient education; discussions on topics of interest; experiential courses – heart sounds, required training, unavailable SMEs, etc.
  - iTunes U
  - How to:  
<http://radio.about.com/od/podcastin1/a/aa030805a.htm>

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## Social Videos

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- YouTube and Google Video
- Why are they so popular?
- Threaded discussions
- Rankings (apomediation)
- Search for “pharmacy”
- In the “classroom”
  - Source of news
  - Recruitment tool for SOPs/COPs
  - Faculty: create core/supplemental information; source of materials for class discussion
  - Students: skill demonstration, communication exercises, development of patient education, find and evaluate existing videos

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## Blogs and Microblogs

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- Blogs (web logs)
  - Personal journal or reflective space
  - Access and push control
  - Engages readers in posting
  - Everyone is a newspaper
  - Embedded links to supporting information
- Twitter
  - What are you doing?...140 characters
  - Embedded links to supporting information

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## Blogs and Microblogs, cont.

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- Blogs in the “classroom”
  - Reflective journaling; discussion space for distance or online courses
  - Online, graded discussions complementing in-class activities
  - Source of information for exercises focused on critical evaluation of topics of interest
- Microblogs in the “classroom”
  - SOPs/COPs - marketing
  - Twitterfall; collate classroom discussions; global assembly; fictitious patient and their experiences in the healthcare system; bite-sized information dissemination; others

<http://www.ideastoinpire.co.uk/twitter.htm>

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## Document Sharing

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- Web-based document
- Creator controls access and permissions
- Resource sharing and discussions
- Tracking changes
- Immediate access
- Google Docs, Clearspace, Elgg
- In the “classroom”
  - Collaborative writing anytime, anywhere without the need to coordinate schedules or travel

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## Wikis

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- Group-oriented social writing applications
- Prototypical Web 1.0 vs. Web 2.0
- Building to facilitate education
  - Active – construction leads to reflection; referencing; evaluation of others' content
  - “Darwinism”
- In the “classroom”
  - Student journals; portfolios; collaborative knowledge bases; group projects

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## Wikis, cont.

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- Concerns
  - Authoritative?
  - Virtual vandalism
  - Openness
  
- Wikipedia.com
- RxWiki.com

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## Social Networks

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- Facebook, MySpace, LinkedIn, Ning, etc.
- Users create profiles, define connections to others, and allow viewers to view the connections
- Well-known social networks - truly social in nature (organized around people, not topics)
  - Friending
- Current uses
  - Branding
  - Outreach

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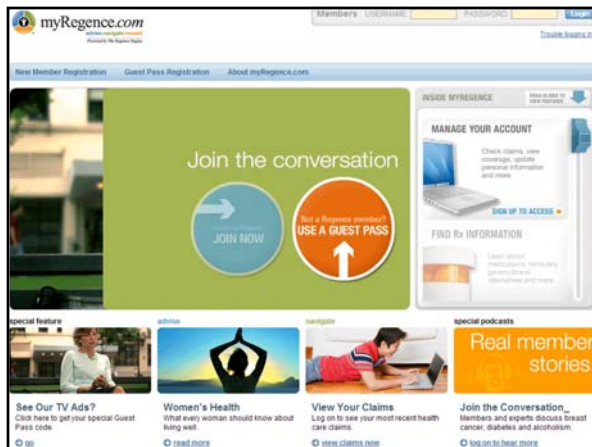
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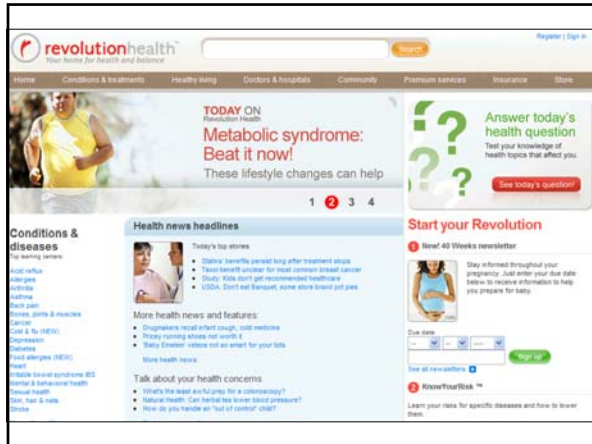
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## Social Networks, cont.

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- In the “classroom”
  - Establish community within a class
  - Organize events
  - Sermo.com, Index Copernicus Scientists, Academia.edu
  
- Strengthen weak ties
- Build reputation

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## Virtual Worlds

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- Not a game but gaming is supported
- Avatars
- Free downloadable client for users (“residents”)
  - Residents construct the content
- Fees to purchase land
- Text, instant messaging, and voice chat
  
- In the “classroom”
  - Pharmatopia – The School of Pharmacy, Nottingham University; Keele University; Uppsala University; University of Copenhagen; UNC Chapel Hill; University of Kansas; University of Sydney; University of Queensland
  - UNC Chapel Hill – patient interview in an exam room

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## Information Management: Aggregators

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- Related, critical tools: required?
- Vs. push email
- RSS feeds
- Aggregation applications
  - Newsgator, Bloglines, NetNewsWire, Liferea, SharpReader, browsers
- User-controlled preferences
  
- In the “classroom”
  - Staying up to date

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## Personal Health Record

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- The PHR contains an "ongoing, longitudinal and life-long record of information that bridges both wellness and illness" [Markle Personal Health Working Group]
- Each person controls their own PHR: individuals decide which parts of their PHR can be accessed, by whom and for how long
- Slightly different than allowing a patient view of an EHR (in which case 'the system' owns and controls the EMR record)
  - PHR requires more initiative from the consumer
  - EHR may have stronger advantage with respect to patient observing errors (or verifying a lack of errors for 'buy in')

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## MS HealthVault

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- Patient-maintained health information storage and management
  - Personal and family
- Devices
  - BP monitors, heart rate monitors, peak-flow meters, scales, pedometers, pulse oximeters
- CVS Caremark, etc.
- Exchange data with providers' electronic records
- Cleveland Clinic and Mayo Clinic
- Uses personal information to develop recommendations for health, wellness, and education
  - Mayo Clinic Health Manager

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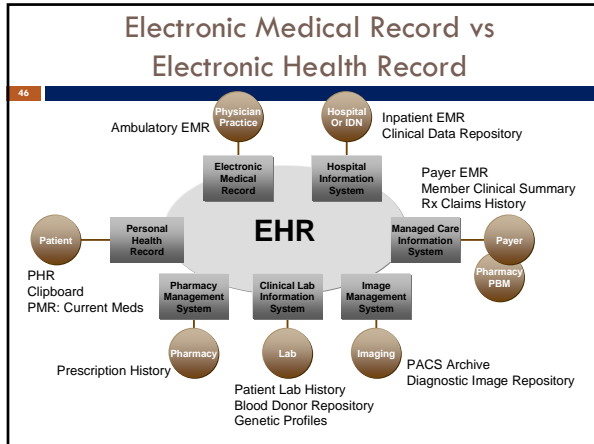
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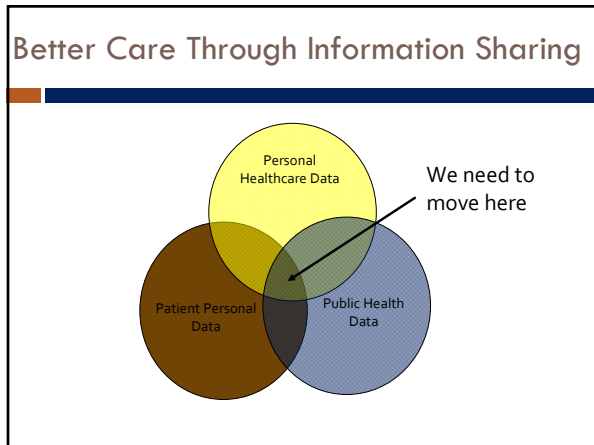
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- ### Challenges
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- Quality only as good as the originator
    - ▣ Updating
  - Privacy/security
    - ▣ Persistence
    - ▣ FERPA
  - Time sink
  - Ever changing
  - Navigating the options
  - A solution looking for a problem

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# QUESTIONS AND DISCUSSION

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