Health IT and Healthcare Disparities

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US “Health” System

Basic and Clinical Sciences
(Clinical Medicine - Treatment)

Social, Behavioral and Population Sciences
(Public Health - Surveillance)

Geographic and Toxicological Sciences
(Environmental Health - Contamination)
Current Converging Trends

• Prevalence of Chronic Disease
• Burgeoning of the Senior population
• Increasing Longevity
• Rising Healthcare Costs
• Growing population of Minorities, immigrants & underserved
Growing Recognition

Sociobehavioral and environmental factors are increasingly recognized as important determinants of health AND healthcare outcomes.
Actual Causes of Death

- Smoking
- Poor Diet
- Inactivity
- Alcohol
- Infections
- Poisons
- Auto Accidents
- Guns

Mokdad & Marks JAMA 2004, 291(10):1238
Health research in the 21st century

Disease causation in general and health disparities in particular, result from complex interactions of many factors that simultaneously and often cooperatively act across more than one level of influence, over time.

Journal of Urban Health, Gibbons 2007
Technology and Disease

Information Technology based approaches offer significant promise in helping to gain a more robust and comprehensive characterization of disease and disparities pathogenesis at the individual and population levels.
"An emerging discipline focused on population level, transdisciplinary, integrative disease/risk characterization, interdiction and mitigation that relies heavily on innovations in computer and information technologies.

J Med Intern Res Gibbons 2005
Stud Health Tech Inform Gibbons 2008
New Disparities Research model

“Socio-Behavioral Phenotypes”

Groups of individual, environmental and Population level factors that predictably coexist and are thought or known to act cooperatively to influence discrete health outcomes among specified populations
New Disparities Research model

“Causal profiles”

Sociobehavioral Phenotypes linked with underlying biophysiologic and molecular mechanisms
New Disparities Research model

*PheGe Analysis*

Next generation GWAS that begin at the population based phenotypic level, which then seeks to elucidate the underlying biophysiologic and molecular mechanisms.
New Disparities Research model

At the population level

One or more “causal profiles” may be responsible for a given outcome.
New Disparities Research model

These “Causal profiles” might be more accurate predictors of health and disease outcomes than contemporary social or biologic constructs, particularly at the population level.
New Disparities Research model

**Populovigilance**

A science of collecting, monitoring and evaluating data from defined Populations, on the adverse effects of disparate care, environmental hazards, behavior and policies, specifically to 1) identify hazards and/or sentinel events associated with the existence of disparities and to 2) prevent harm to patients and individuals among the target subpopulations.
New Disparities Research model

Disparities Harm Reduction Research

Transdisciplinary research with a primary focus of identifying and evaluating strategies designed to mitigate the adverse health effects associated with a defined disparity and target population.
The role of technology in Disparities research is not limited to improving our understanding of the etiology and pathogenesis of disease at the population level.
Tip of the Iceberg

EMR’s
CPOE
e-consultation
Telemedicine
Remote monitoring
Intelligent Devices
Sensor Technology
Programmed Evidence-Based Processes (PEP’s)
Reality

HC System

Vs

Patients and Caregivers
Consumer Health Informatics

Consumer health informatics (CHI) is the branch of medical informatics that “analyzes consumers’ needs for information, studies and implements methods of making information accessible to consumers, and models and integrates consumers’ preferences into medical information systems.”

Eysenbach G. BMJ 2000; 320(7251):1713-6
Early Examples of CHI

- Web sites providing self-care information
- Internet-based disease management tools
- Personal health records (PHRs)
- Online support groups
Emerging Examples of CHI

- Smart Devices (bicycle)
- On Demand (UHC)
- Next Gen “Apps”
- RFID
Opportunities

Consumer utilization

- Caregivers
  - Documentation
  - Reporting
  - Decision Support
  - Training Certification
  - Patient Education
  - Social Support
  - Quality Assurance
  - Patient satisfaction
  - Trust
Potential Impact of technology enabled Disparities strategies

Across the Health and Care Continuum

- Harm Reduction
- Prevention/Wellness
- Screening
- Diagnosis
- Medical Treatment
- Self care/ Self Management
- Survivorship
Do CHI Tools Work?

- Current literature is broad but at times thin
- Emerging themes
  - CHI applications can significantly impact health
  - May also be effective adjuvants to traditional Tx
  - Effective CHI applications include
    - 1) individual tailoring,
    - 2) personalization and
    - 3) behavioral feedback.

*Gibbons MC et al. Impact of CHI Applications SER 2009*
Can Social Media help address Healthcare Disparities?

- Are there determinants of disparities that can be impacted by Social Media?

- Is using social media for healthcare marketing, data dissemination, decision support, selfcare management or data dissemination useful among disparities populations?
The Social Media Phenomenon

- Interaction, sharing information and collaboration is key

- Growth in the utilization of social media and web 2.0 applications is 3x faster than overall growth in internet utilization
Social Media “Disparities”

Percentage of respondents who visit social networking at least 2 or 3 times a month

- English Preferring Hispanics: 36%
- Asians: 34%
- Spanish Preferring Hispanics: 27%
- African Americans: 26%
- Non-Hispanic Whites: 18%

2009 Quirk’s Marketing Research Review
Social Media “Disparities”

Percentage of respondents who visit MySpace or Facebook "regularly"
Why improving access and quality is not enough

- Minority patients stress the value of being able to “tell their story and be heard”.
- They also emphasize the importance of information sharing rather than decision-making sharing.
- They often believe there is an acceptable role for non-adherence as a mechanism to express control and act on treatment preferences when inequitable experiences exist.

References:
- Capitman J et al CPTD for R/E minorities; Evidence report and evidence-based recommendations. 1500-00-0031, DHHS 2003
Social Media

- Patient related opportunities
  - improve shared decision making
  - enhance patient engagement
  - Reduce the prevalence of “acceptable” noncompliance
  - Promote adherence
    - Nike+iPod – Physical activity & Fitness
    - Qwitter, Quitnet, Habitchanger – Smoking cessation
    - Whrrl, Yelp – Healthy diet and nutrition
    - Foursquare, GyPsii, Plazes – other health or healthcare oriented activities
HIT & Healthcare Disparities

- Provider related opportunities
  - Improve information sharing and patient centered collaborative care
  - Obtain important nonclinical information - ODL’s
  - Enhance access to health care services
    - Patients like me
    - Second Life
- Future
  - “Doctors like me”, “Patients like mine”
  - “Doc”sourcing
HIT & Healthcare Disparities

- Research related opportunities
  - Clinical trial recruitment and retention – (CER)
  - Observational trials and hypothesis generation
  - Community Based Participatory Research
  - Social media information exchange – consumer databases
    - Patients like me
    - Crowd Sourcing
    - NexGen PHR’s
    - Consumer Health Informatics tools
Future

• In this world
  » Clinicians know and understand how all social, environmental and biological factors that collectively contribute to ill health
  » Health risks are managed before they become diseases and before patients ever need to go to the hospital
  » Patients and caregivers are valued and supported at the point of need
Over time there exists real potential to make significant impact towards the goals of

1) Enhancing Understanding of how disparities happen
2) Improving Health and Care systems
3) Eliminating disparities & population health challenges