CONNECTED HEALTH
PROMISING TRIPLE AIM OUTCOMES

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Objectives

1. Describe how connected health technologies are enabling new care models with significant potential to bend the healthcare cost curve.
2. Explore competencies needed for nurse informatics, educators, researchers.
3. Identify a personal e-health engagement plan to grow experience and advocacy.

Engaged Consumers & Pervasive Technologies

Shifting the culture, place and cost of care

- Personal Health Information Technologies
- Bi-directional access to health information
- Secure communications
- Health data banks

Consumers Mediating Exchange

Shared Decision Making

- Patient Generated Health Data
- Preference sensitive care
- Shared Care Planning
- Collaborative Care Teams

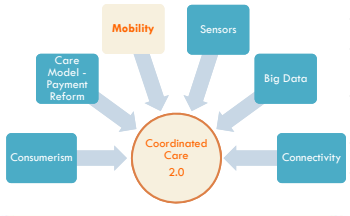
•Personal health apps

- Sensor/device/home data/wearables
- F2F and virtual care
- N = 1, N = many

Co-Producing Precision Care

The call to leadership for Nursing Executives and Informatics has never been greater!

Super Convergence



THE POST-EHR MARKET

- "More cell phones than toothbrushes"
- 13,000 health and wellness apps, yet few targeting non-adherance
- Explosion in-body and on-body health sensors, neighborhood/environmental
- Interoperability is growing concern
- The Health IT world is expanding with new players, many **new** to healthcare
- Large datasets and sophisticated analytics

New technologies leveraging **consumer and provider directed** efforts to manage chronic conditions – and new models for collaborative, coordinated and connected care.

Digital Health Revolution

How the Digital Revolution Will Create Better Health Care

- To what extent are consumers empowered?
- Wireless sensors
- Sequencing the genome
- From imaging to printing organs
- The convergence of human data capture
- The impact of HOMO DIGITUS
- Rebooting the Life Science industry
- Rethinking where and how care is delivered
- n=1, n=many

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Connected health technologies converging

With systems biology, genetics and genomics

Prediction
- New sources of health-related diagnostic data: genetic makeup & protein biomarkers
- Individual's health future

Personalization
- From impersonal and imprecise to precise preference-sensitive care
- Contextualizing interventions and outcome evaluation based unique digital profile

Prevention
- Based on each individual's genetic makeup and current blood-protein markers
- Determine the probability of contracting certain diseases & response
- Guidance for developing customized therapeutic drugs

Participation
- Secure shared information from BIG health data
- invites active participation in personal choices about illness and well–being

Sense making and data visualization tools needed for shared decision making

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Mobility is the New Care Model

The potential for mHealth to lead to
the complete re-engineering
of healthcare is limited by only two things:
our imagination, and more immediately pressing,
the need for direct evidence to guide its implementation."

Steve Steinhubl, (2014)

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Connected Health

Improving Chronic Disease Self-Care, Clinical Outcomes & Cost

By Shantanu Nundy, Jonathan J. Dick, Chia-Hung Chou, Robert S. Nocon, Marshall H. Chin, and Monica E. Peek

Mobile Phone Diabetes Project Led To Improved Glycemic Control And Net Savings For Chicago Plan Participants

8.8%
Savings
The program was associated with a total cost savings of $32,388 over six months, which was an 8.8 percent savings over pre-period costs.

ABSTRACT Even with the best health care available, patients with chronic illnesses typically spend no more than a few hours a year in a health care setting, while their outcomes are largely determined by their activities during the remaining 5,000 waking hours of the year. As a widely available, low-cost technology, mobile phones are a promising tool to use in engaging patients in behavior change and facilitating self-care between visits. We examined the impact of a six-month mobile health (mHealth) demonstration project among adults with diabetes who belonged to an academic medical center's employee health plan. In addition to pre-post improvements in glycemic control ($p = 0.01$) and patients' satisfaction with overall care ($p = 0.04$), we observed a net cost savings of 8.8 percent. Those early results suggest that mHealth programs can support health care organizations' pursuit of the triple aim of improving patients' experiences with care, improving population health, and reducing the per capita cost of health care.

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mHealth & Digital Health

Clinical Trials Underway

Scripps Translational Science Institute (STSI)

Consumer Health Prospective Study

- **Participant Characteristics**
  - Device & specific parameter usage
  - Use of new technology (Diffusions of Innovations Scale 8-items)
- **Changes in Health Outcomes**
  - Patient Activation (Patient Activation Measure 13-items)
  - Quality of Life (Health Related Quality of Life; SF12)
  - Communication of medical issues (Medical Communication Competence Scale 2-items)
  - Medication Adherence (Morisky 8-Item Medication Adherence Questionnaire
- **Changes in psychological outcomes**
  - Speilberger State-Trait Anxiety Inventory; STAI Y-6 item)
- **Changes in Lifestyle Outcomes**
  - Food Screener (Fruit and Vegetable Screener 10-items; Fat Screener 15-items)
  - Exercise (GLTEQ 2-items)
- **Perceptions of the the mHealth device**
  - Attitudes toward technology (Computer Attitude Scale; CAS 20-items)
  - Consequences of the device (Negative Consequences of Usage)
  - Satisfaction with technology (Usability and Satisfaction)

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mHealth & Digital Health

Clinical Trials Underway

Scripps Translational Science Institute (STSI)

Wired for Health initiative

- Scripps Health Employees
- Three chronic conditions (diabetes, heart disease and high blood pressure)
- Can integrating wireless technologies, online social health networks and medicine impact healthcare spending?

Meditation effect on the Heart Health

- Weekend meditation retreat
- Sensors measure blood pressure and markers of stress, including EEG that correlates with emotion
- Consumer Health Study

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Patients and Providers

Making Sense of Sensors for F2F + Virtual Care

Making Sense of Sensors:
How New Technologies Can Change Patient Care

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Wearable Sensors

Flexible, Stretchable Nano-materials Enabled with Smart Phone

Hydration Sensor

http://www.mc10inc.com/consumer-products/sports/hydration-sensor/

Skullcap Head Impact Sensor

http://www.mc10inc.com/consumer-products/sports/checklight/

Smart Contact Lens

- Tiny wireless chip + miniaturized glucose sensor
- Embedded in between two soft layers
- One reading per second
- Tiny LED lights warn glucose level changes
- Connected to smart phone

http://googleblog.blogspot.de/2014/01/introducing-our-smart-contact-lens.html

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Bionic Pancreas

2 Pumps (Insulin, Glucogan) + a Monitor + a Smart Phone

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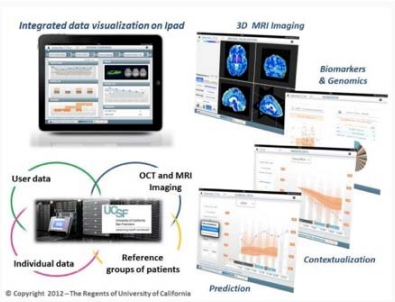
Contextualizing Precision Care

Integrated Data Visualization Tools



Research Summary

Short video

http://neurology.ucsf.edu/research/ms-bioscreen

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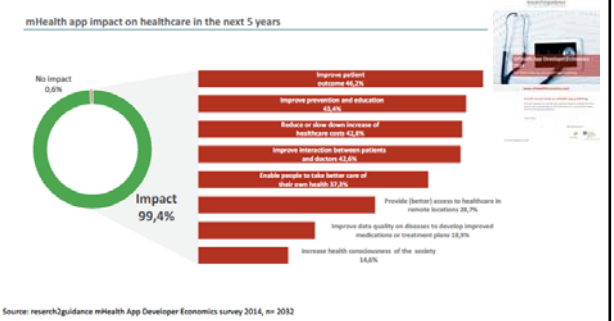
mHealth

Expected Impact Next 5 Years



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ANI

SPONSORED BY AMIA & HIMSS

ANI + ANA join ONC Consumer eHealth Pledge Community

"Nurses are the most-trusted health professionals and have a long history of patient advocacy. "

- 3.1 Million Nurses
- Empowered to use eHealth
- Touching 18 Million Patients/Yr
- Our Pledge

Resources: ANI Consumer eHealth Toolkit


NEW! ANI Consumer eHealth Toolkit

Nurses are the most-trusted health professionals and have a long history of patient advocacy. We expect nurses to have a significant impact on consumer participation in Health IT to increase use of Personal Health Records and Patient Portals from 10% today to over 25% in the next 2 years. *ANI Pledge to Support ONC Consumer eHealth Program*

If nurses are to effectively encourage patients to use PHRs and similar health IT tools to engage more fully in their health and health care, we need to set an example by using them ourselves!

Step 1 Learn

- Read the Full ANI Pledge
- AHRQ Issues New Guide for Use of Interactive Preventive Care Record (IPHR)
- NEW! Accessing Your Health Information With the Blue Button
- Explore the Pledge Partners
- ONC: Understanding Health IT Resources
- ONC: View Patient/Consumer Videos
- PHR Tools & Resources from AHIMA
- PHR Tools & Resources from ANA
- PHR Tools & Resources from HIMSS
- *Stay tuned for our upcoming webinar series...*

http://www.allianceni.org/programs.asp

Step 2 Engage

- Take the Pledge to use PHR now on the ANI Facebook Page
- Post our PHR banners to your organizations website
- Already use a PHR? Tell your story
- Use the ONC Consumer Engagement ppt at your next conference
- Share the ONC Health IT Videos with your patients
- Take the ANI Consumer eHealth Survey
- TEN Steps to Support the ANI eHealth Pledge *Intended for National Health IT week but many of the activities can be used all year round*

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New Competencies Needed

Nursing Informatics, Educators and Researchers

ANI Member Organization Survey (February 2014)

- Nurses' personal experiences (as a patient/family member/caregiver) with:
  - Other consumer tools, including mobile health apps, telehealth, digital health
  - View, Download, and Transmit (VDT) of personal health data
  - Blue Button
  - Patient Generated Health Data
  - Patient Reported Outcomes (e.g., H-CAHPS, PROMIS)
  - Patient Governance (e.g., Shared Care Plan/Decision Making)
- Rates of nurse adoption as individual/family member
- Rates of consumer adoption
- Barriers to adoption as individual/family member
- Barriers to adoption for other consumers
- Barriers to adoption for nurses' employers

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New Competencies Needed

Nursing Informatics, Educators and Researchers

ANI Member Organization Survey (February 2014)

- Nurses' knowledge base to support
  - *Patient advocacy*
    - for a variety of consumer eHealth tools (PHR, Patient Portals, Mobile Health Apps, Telehealth, Digital Health, VDT, Blue Button, PGHD, Shared Care Plan/Decision Making)
- Nursing Informatics knowledge base to support:
  - *Design, implementation and evaluation*
    - for a variety of consumer eHealth tools (PHR, Patient Portals, Mobile Health Apps, Telehealth, Digital Health, VDT, Blue Button, PGHD, Shared Care Plan/Decision Making)
  - *Integration* of patient generated health data with provider generated health data
  - *Capture* and *reporting* of patient reported outcomes data (e.g., H-CAHPS, PROMIS)
  - *Analytics* for consumer engagement and population health
  - *Strategic planning* for consumer eHealth

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Three Questions

- How well do you know your personal values and preferences and digital health profile?
- Have you Viewed, Downloaded and Transmitted your health information and/or family members?
- How can you leverage personal experience to grow advocacy and competency building?

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