

SINI 2017
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Digital Health: Leveraging the Power for Chronic Disease

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Overview

- Current Health Care Challenges
- Digital Health
- A Chronic Disease Case Study
- The Nursing Informatics Opportunity

What do these have to do with Nursing Informatics & Chronic Disease & Digital Health?

Stick to Your Knitting!

Get out of the Sandbox....

Change the Game!

Agile Methodology

Iterative Design

System Integration

Evolving Healthcare State

- New Marketplace**
 - Value-based payment
 - Payer-provider consolidation
 - Consumerism
- Care Redesign**
 - Quality & accountability
 - "Health" instead of "sick care"
 - E-patient & Virtual Visits
- Leadership**
 - Engage clinicians
 - Team-based care
 - "Top of License"
- Patient Engagement**
 - Behavior strategies
 - Service convenience
 - Shared decision-making

Lee, et. Al. Leading the transformation of health care delivery – The Launch of NEIM Catalyst 2015 catalyst.neim.org

Definition of Digital Health

Digital Health Tools

- Big Data**: Analysis of remotely stored health data to derive insights and develop algorithms to inform or improve patient health.
- miHealth and Connection Tools**: The use of mobile devices, online platforms, or kiosks for health and disease management, the practice of medicine, and to enhance communication and engagement among healthcare stakeholders.
- BlueStar**
- Digital Diagnostics and DIY Tools**: Digital technologies that enable diagnosis of conditions or enhance the analysis of diagnostic tests, with an emphasis on self diagnosis.
- EHR and Supporting Tools**: Electronic health records, clinical decision support tools, and other digital solutions that allow clinical knowledge and resources to be used more effectively and efficiently.
- Sensors, Wearables, and Connected Devices**: Devices that continuously collect and transmit vital signs, heart rate and other health data in real time.
- Social Media**: Social platforms that facilitate information and insight exchange and serves as a tool to collect this in real-time directly from patients in real time.
- Smart Patients**

Digital Health is focused on redefining the product value proposition, not on how to market the existing product better through digital channels (i.e., Informational Websites, Banner Ads, Help Desks, Advertisements, etc.)

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The facts about smart phone and internet access

- 72% of U.S. adults own a smartphone UP from 35% in 2011.
- 91% of Medicare patients currently have internet access
- 47% have smartphones
- Mobile devices have become a primary way for some users to access the internet
- Some smartphone owners—particularly younger adults, minorities and lower-income Americans—depend on their smartphones for internet access
- 62% of smartphone users use their phone to get information about a health condition

Source: Pew Research April 2015, Feb 2016, Roper Research 2014
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Comparative Advantage of Mobile Technology

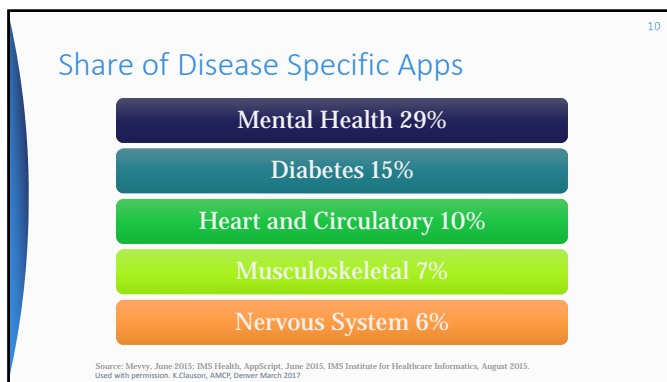
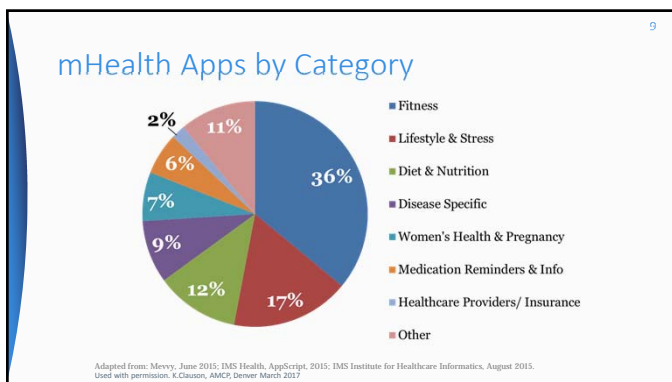
- Real-time engagement**
 - Using devices they already have
- Decision Support**
 - Connecting intent with day-to-day decision making
- Connectivity**
 - Anywhere, anytime, any demographic

3 Tiers of mHealth solutions

Increasing complexity, cost, engagement, and potential

- Platform +/- device**
 - BlueStar
 - Care4Today
 - Omada Health
 - Propeller Health
 - Proteus Discover
- Application (App)**
 - LoseIt!
 - Monster Manor
 - MyMeds
 - Project: Evo
 - What's My M3?
- Text Message**
 - Pregnancy
 - Medication adherence
 - Smoking cessation
 - Visit reminders

Used with permission. K.Clauson, AMCP, Denver March 2017



FDA: Mobile Medical Guidance

Mobile medical apps (MMA)

- Patient self-management apps**
 - Tools to organize and track their health information (not for treating or adjusting medications)
 - Tools to access to health information (document and communicate with health care providers)
 - Tools that automate simple health care activities (e.g., reminders)
- Enhancement/Disruption**
- MMA** (Lower risk mobile apps that meet "device" definition, but not considered "MMA")
 - Mobile apps that meet "device" definition that are either intended:
 - To be used as an accessory to already regulated medical device, or
 - To transform a mobile platform into a regulated medical device.

Mobile apps not considered "medical devices"

No regulatory requirements

Focus of oversight

CBHI A Workshop on Managing App Development Under FDA Regulation, Johns Hopkins University, January 23, 2014

Digital Health & Chronic Disease

CHANGING THE GAME

How do we efficiently and cost effectively provide care for the growing diabetes population

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Diabetes may affect as many as **1 in 3** Americans by 2050

29 million diagnosed

| | |
|-------------------------------------|---------------------------------------|
| Total Patients not at goal HbA1C<7% | Insulin Patients not at goal HbA1C<7% |
| 41% | 59% |

ADA¹ AACE² IDF³
 <7.0 ≤6.5 ≤7.0
A1C (%) A1C (%) A1C (%)

Technology: The Enabler

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Efforts to Improve Value of Health Care Delivery

| | |
|--|-----|
| Build interdisciplinary teams and co-locate personnel to provide formal and informal education | 63% |
| Use technology to promote patient engagement in their care | 60% |
| Screen patients for mental health issues as part of routine care | 31% |
| Measure patient report outcomes (eg, experience after prostate cancer surgery) | 20% |
| Capture data on social needs as part of routine care | 12% |
| Provide teams with financial incentives for improvement of quality and/or efficiency | 10% |
| Try to channel volume to high-performing teams | 10% |
| Other | 8% |

Which of the following does your organization currently perform as part of efforts to improve the value of health care delivery?

Sample size = 292 Multi-response

VERBATIM COMMENTS FROM SURVEY RESPONDENTS

Do you view population health management as a **bad, essential, or somewhere in between?**

"Population health management is key to enabling people to take control of their health care needs. As the number of people with chronic conditions and the population ages, there needs to be a mechanism in place by which prevention and primary care is funded."

- Executive at a large, nonprofit community hospital in the Northeast

Compton-Phillips, A. Care Redesign Survey: Why Population Health Management is Undervalued. Insights Report 2016. catalyst.nejm.org

Digital Tools

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- Transform data into information and knowledge
- Real-time and longitudinal perspectives
- Contextually and temporally relevant interventions
- Judicious application of evidence-based care
- Expanded, connected circle of influence

Growing Body of Evidence for Digital Health

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- Systematic Review of Reviews Evaluating Technology-Enabled Diabetes Self-Management and Support
- 265 articles reviewed, 25 selected for data abstraction
- Reductions in A1C ranged from 0.1% to 0.8%
- Interventions that were most effective included the full TES Feedback Loop
 - Analyzed PGHD
 - Tailored individualized feedback
 - Two-way communication
 - Individualized education

Figure 2. Technology-Enabled Diabetes Self-Management Education Feedback Loop

Greenwood D, Gee P, Fakhri K, Peeples M. A Systematic Review of Reviews Evaluating Technology-Enabled Diabetes Self-Management Education and Support. Journal of Diabetes Science and Technology. Accepted for publication.

Moving from the Individual → Population

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Digital Health Driving Innovation: A Case Study

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Digital Health...Digital Therapeutics

Digital therapeutics, a subset of **digital health**, is a health discipline and treatment option that utilizes a **digital** and often online health technologies to treat a **medical** or **psychological condition**. The treatment relies on behavioral and lifestyle changes usually spurred by a collection of digital impetuses. Because of the digital nature of the methodology, data can be collected and analyzed as both a progress report and a preventative measure. Treatments are being developed for the prevention and management of a wide variety of diseases and conditions. Digital therapeutics often employ strategies rooted in **cognitive behavioral therapy**.^[Wikipedia May 2017]



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Digital Therapeutic for Type 2 Diabetes

A CLINICAL AND BEHAVIORAL INTERVENTION TO DELIVER OUTCOMES

- First Digital Health company built on a life sciences model
- Extensible and secure system architecture to scale to support multiple chronic diseases
- Published, peer-reviewed clinical outcomes in randomized control studies and real-world programs



- FDA cleared WellDoc's BlueStar platform
- ADA recognized as first digital therapeutic
- AADE curriculum integrated in platform

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A Science Journey for an Evidence-Based Digital Health Tool

Natural History of Clinical Technology*

First Technical Data (Discovery)

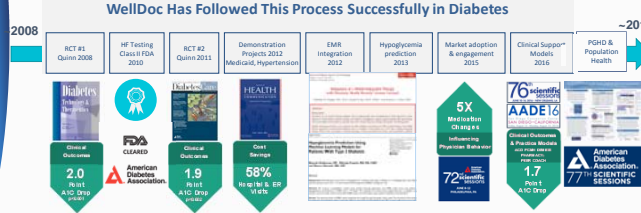
Safety & Efficacy (FDA)

Reasonable & Necessary (Limited Market)

Proven Clinical Effectiveness (Broad Market)

WellDoc Has Followed This Process Successfully in Diabetes


2008
~2017




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A Digital Health Platform: How it Works

Patient Coaching App: Mobile and Web-based Multi-device, multi-OS, on- or off-line, clinical and consumer



CLINICAL



Clinical Decision Support:


- SmartVisit Report
- Population Reports
- Via fax, object in EMR or raw data via API


ANALYTICAL



TECHNICAL

Care Management & Administration Portal
Implementation and Configuration Management





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Dynamically Generates Engaging Feedback and Real-time Coaching & Supports Focused Conversations with the Care Team

MY BlueStar Data

Correlative Cause & Effect

Teachable Moments

Sustained Engagement


Patient & Care Team Communication

Outcomes

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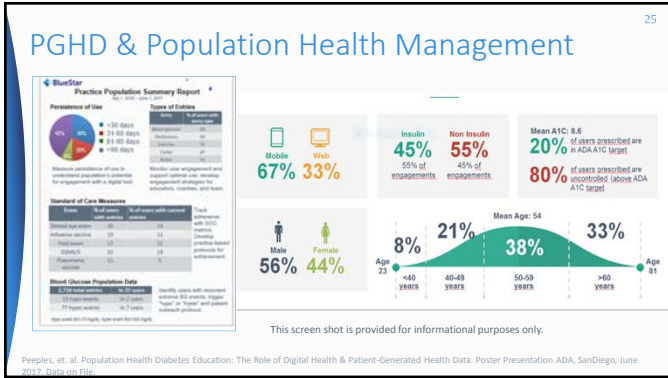
Digital Data Supports Focused Conversations with Team



How to use the SMART Visit Report

- Review Data:** Review the data for the patient's visit. The data is organized into sections: Patient Information, Visit Information, and Clinical Data.
- Review & Highlight:** Review the data for the patient's visit. The data is organized into sections: Patient Information, Visit Information, and Clinical Data.
- Review & Share:** Review the data for the patient's visit. The data is organized into sections: Patient Information, Visit Information, and Clinical Data.
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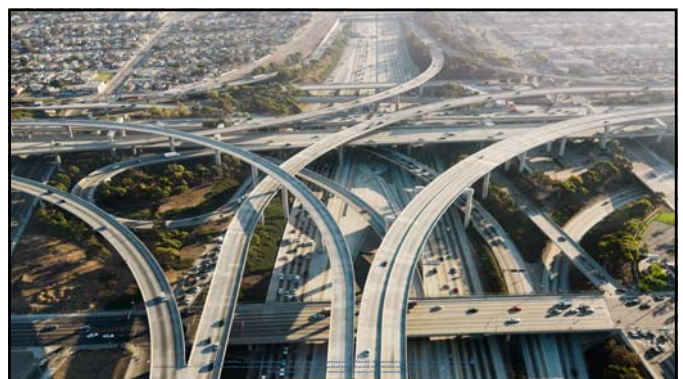
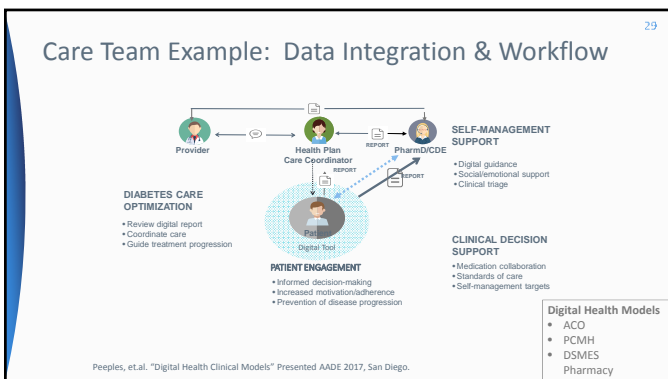
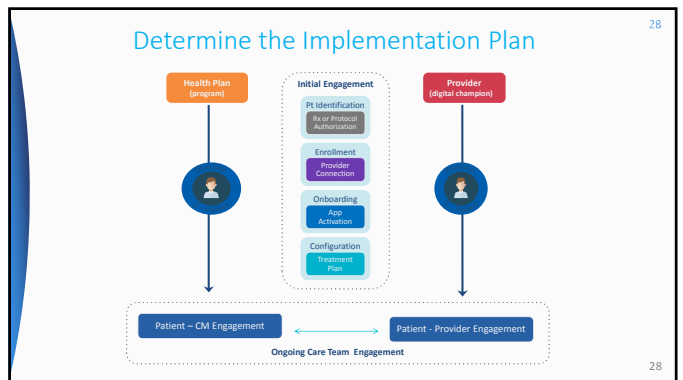
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Integration into Clinical Workflow

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Digital Health is not a stand-alone program but a solution for integration into your practice or structured program to drive diabetes care and education outcomes becoming *"part of what you do"* not in addition to what you do.



What do these have to do with Nursing Informatics & Chronic Disease & Digital Health?

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Stick to Your Knitting!

Get out of the Sandbox.....

Change the Game!

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"Stick to your Knitting"

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National Standards for Diabetes Self-Management Education and Support

2017 Standards Revision

- Program → Services
- Supports **linking** diabetes education with medical management and recommends **embedding** in primary care
- Addresses **technology enabled** diabetes education and care in **evolving payment models**
- Emphasizes the 4 critical times to refer patients to DSMES In Press....

Iterative Design

"Get Out of the Sandbox"

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- 2016 AADE Technology Workgroup.....
- Diabetes Digital Health Learning Network

"Use the evidence-based digital tool with your patients limited only by your organization design & scope of practice" DDHLN Project Agile Methodology

Based on the Architecture for Integrated Mobility (AIM) 2017 American Association of Diabetes Educators. All rights reserved.

"Change the Game"

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The integrator's role includes at least five components: *partnership with individuals and families, redesign of primary care, population health management, financial management, and macro system integration.* Berwick, Health Affairs, 2008

- Non-physician providers could furnish the majority of care
- Inter professional teams, using a clinic-centered model (rather than patient-centered model), may be most successful
- Case management improves both health and cost outcomes
- New models, distributing primary care
- Correctly structuring care teams for medically complex patients and those in need of only episodic care is essential

Reichlin, Doss, Robinson, Garland: The Effects Of Primary Care Access For The Underserved: Implications For The Health Care Workforce Under Health Reform. Health Affairs, Nov 2013.

The E-Patient & Health Care Team Person-Centered & Connected Care

Digital Technology enabling HEALTH!

Thank You!

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