SINI 2016
26th Summer Institute in Nursing Informatics

Informatics at the Crossroads of Care Coordination

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University of Maryland School of Nursing, Baltimore, Maryland · UNIVERSITY of MARYLAND SCHOOL of NURSING

Network Integration of Information Technologies

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Objectives

- Explore the relevance of clinician leadership in the informatics and technology environment

- Discuss why interoperability is essential in the context of care coordination

- Discuss related barriers and standards diversity that impact network integration and efficient analytics.

Our Way Forward

"It's not the strongest of species that survive, nor the most intelligent, but the ones most responsive to change."

Charles Darwin

The Key to the Future is not Predicting; It's Navigating

- Look for velocity and volume: Big rocks in:
  - Aging baby boomers – Listen to what they want and deliver
  - Outpatient growth
  - Investment in unique strengths – people, clients, partners
  - Diversify services for an ambulatory market
  - Digital revolution
  - Clinical integration across the continuum
  - Threats to data integrity and privacy

The networks that must be integrated

- People- improving front line clinician effectiveness
  - Models of integration and clinical leadership
  - Patient engagement
- Populations
- Cultures - absolute transparency is critical to maintaining credibility
- Technology

Leveraging IT to Sustain Strategic Results

Innovation

- Applying critical thinking skills to improve patient and customer processes and services and to create value.

Service Coordination & System Integration

- Utilize EHR as a driver of clinical transformation and integration, leading the organization to technology alignment, standardization, and simplification across the system to decrease waste and variation.
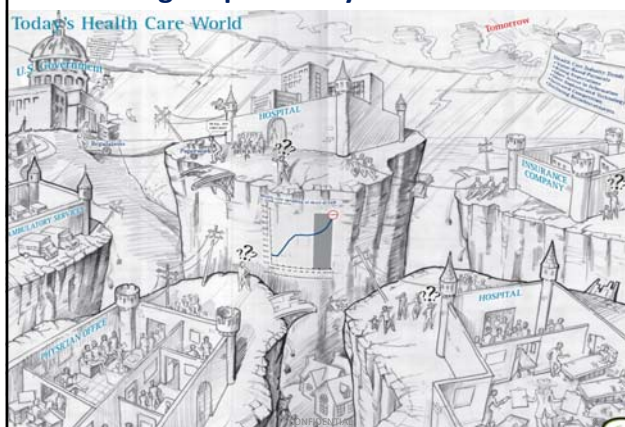
Collaboration

- Relationship-building, collaboration, and partnering with patients, colleagues, and other stakeholders to continuous improvement.

Care Continuity

¼ PROCESS

¼ TECHNOLOGY

½ CULTURE
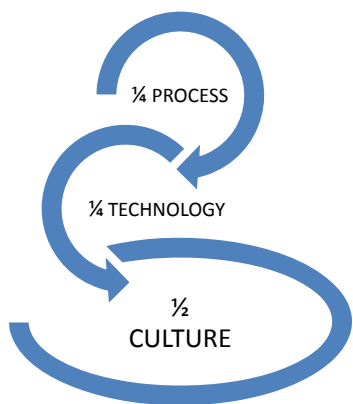
A "Learning Map" --Today's Health Care World

"Learning Map" - Future Vision

Clinical Leadership in IT

- Clinical transformation in healthcare
- Clinical influence in Informatics
- Leadership and accountability
- Focus on clinical quality and outcomes
- Supporting decision making at each level of the organization
- Transforming care through information integration

Clinical Roles in IT

Being a member of the executive team is necessary to enable success for Key leaders and officers:

- CIO
- CMIO
- CNIO
- CDO
- CSO
- CII2

- CAO
- Chief Experience Officer –hear the voice of the customer (VOC)
- HRO
- CRIO
- VP POP HEALTH

Clinicians, influencing the relevance of data analytics to transform clinical practice are often perceived as more credible

Leading Quality and Compliance with Certainty

Culture of Confidentiality

- Innovation/Disruption
- Engagement
- Inspiration
- Transparency

Aligning People Process and Technology

To achieve highest value, lowest cost healthcare and realize the *Quadruple Aim* will require:

- Ability to quantitatively measure, understand, and predict performance in healthcare delivery.

- Leverage fundamental transformation in enterprise data management capabilities and the application of advanced multidimensional analytics to understand the:
  - impact of variations in resource utilization and practice patterns involving cost, quality and customer experience (patients, consumers and providers).
  - Organize performance to drive strategic vision and accomplish the full transformational potential of big data
  - Focus on an enterprise data governance structure, enterprise data management tools and processes to improve uses of data and analytics.

- Invest in recruiting staff with key skills and talents related to new platforms and tools. e.g., Chief Data Officer, CMIO, Population Health Czar/Czarina

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Interoperability

THE CAPACITY OF SYSTEMS, APPLICATIONS, AND DEVICES TO INTERACT SEAMLESSLY AND MEANINGFULLY WITH MINIMAL HUMAN INTERVENTION

Actionable information

- In the context of health information technology, <u>workflow is the actionable information</u> that physicians or nurses can see within an EHR that helps them determine what patient information to collect and what medical services to provide.

- Providers cannot act upon information they cannot easily see.

Interoperability

- "The lack of interoperability is one of the major reasons why the promise of electronic health records has not been fulfilled," (AMA President Steven Stack, MD). "Vendors have been incentivized to meet the flawed benchmarks under the Meaningful Use program. We need to replace those benchmarks with ones that focus on <u>better coordinated care</u>.

- "MACRA gives us a chance to start fresh and produce metrics that enhance the wellness of patients. We are willing to work with CMS and ONC to get there."

  Healthcare IT News Week, June 6, 2016

Interoperability

To insure the seamless and cost effective exchange of data to provide a positive patient experience.

- WHO
- WHAT
- WHEN
- WHERE
- WHY
- HOW

The Advisory Board – Healthcare IT Advisor special edition 2016

Clinical Transformation

- A system-enabled set of business processes that reflects a digitally *seamless care experience*: one patient, one record, across the continuum and available at all times and all places to caregivers and patients.
- *Patient-centered* with easy authorized system access
- Highest *quality*, with best practices and evidence-based care with Advanced Analytics Capabilities
- *Integration* of systems and data across the enterprise
- *Standardized* and efficient work processes across the organization (one point of data gathering with multiple points of data sharing)
- *Clinically led in partnership with IT*

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Clinical Care Coordination

Will depend on Healthcare Organization's ability to Interoperate, affecting:

- National health information networks primary barrier to exchanging clinical information based on the industry adoption of standards
- Maturity of health information technologies
- Processes which ensure "Continuous Interoperability"

AEGIS.net, Inc. - Mario Hyland Dec 2015
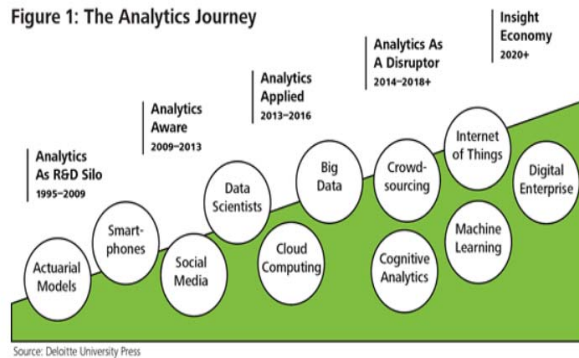
ANALYTICS

Clinical Relevance

Culture of Analytics

A successful healthcare analytics culture requires a multi-disciplinary approach to manage significant data volume and velocity

- The regulatory environment requires new levels of data collection and validation
- Clinical and financial data now combine to measure quality success
- **Every decision should have a single source of truth**

McKinsey Global Institute. (2011). Big data: The next frontier for innovation, competition, and productivity [White paper].
http://www.mckinsey.com/insights/business_technology/big_data_the_next_frontier_for_innovation

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Figure 1: The Analytics Journey

Analytics As R&D Silo 1995–2009 · Analytics Aware 2009–2013 · Analytics Applied 2013–2016 · Analytics As A Disruptor 2014–2018+ · Insight Economy 2020+

Actuarial Models · Smart-phones · Social Media · Data Scientists · Cloud Computing · Big Data · Crowd-sourcing · Cognitive Analytics · Internet of Things · Machine Learning · Digital Enterprise

Source: Deloitte University Press

Leveraging Advanced Analytics and Decision Support

Enterprise-level performance dashboards will define the relationship between healthcare practice variation and value defined as [service + quality]/cost to:

- Further support the changing role of patients as consumers who have more diverse choices, and new care process and price expectations.
- Benefit from the expansion of traditional data sources with non-traditional, external information to potentially include socioeconomic, environmental, social and geolocation factors.
- Provide near real time predictive and prescriptive analytics and forward-looking insights in addition to retrospective.

Ascension Health @ Scottsdale Insititute 2016

Most Pressing Challenges

- Shortage of analytic and managerial talent necessary to make the most of the data (deep expertise statistics and machine learning)

- Right infrastructure being in place to create transparency

- Understanding the benefits to key stakeholders

- Proper incentives to encourage innovation to reduce variability and improve performance

- Data security and the bad actors in cyberspace

Millennial Generation leads Change

- Millennials are tech-savvy—and want their providers to be, too

- Millennials want to know about costs upfront

- It's all about convenience

- This generation is more social than ever

Mobile and Wearable Technology

"Healthcare is notoriously **resistant to change**, and in the application of clinical information, this limitation is felt most acutely– an **Achilles heel of the industry**, but now real foundational change is taking place".

- Sweeping tide of innovation—medical product and clinical process innovation, finance and delivery model innovation, and stakeholder participation innovation—all based on information liquidity.
- Pivot toward clinical knowledge sharing: mobile tools such as communicative biosensors, wearables and nearables worn on the wrist, head, foot or body as a garment,
- Designed in every conceivable form factor, with convenience and utility in mind.

Rick Krohn, *Wearables and the Internet of Things for Healthcare, 2016*

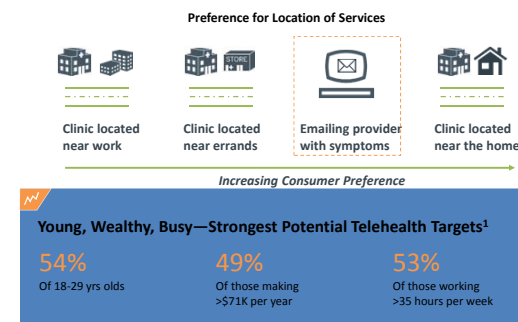## Wearables Evolve With Demands of the Patient-Consumer

- Consumers are invested in the potential for these devices to improve their daily habits, with 69% of respondents agreeing that wearables helped to improve personal accountability in a 2016 survey.

State of the Wearables Market

Average cost[1]
$290

Top location
Wrist

Top function
Activity tracking

Market Share for Wearable Devices[2]

FitBit 26.9%
Apple 14.9%
Garmin 4.2%
Samsung 4.0%

433 Number of wearable devices available for purchase in 2016[1]

The Advisory Board Company . June 2016

Patient Preferences for Online Care Growing

Survey Finds Email Visits Preferred to Clinic Near Errands or Work

Preference for Location of Services

| Clinic located near work | Clinic located near errands | Emailing provider with symptoms | Clinic located near the home |

Increasing Consumer Preference

Young, Wealthy, Busy—Strongest Potential Telehealth Targets[1]

| 54% | 49% | 53% |
| Of 18-29 yrs olds | Of those making >$71K per year | Of those working >35 hours per week |

2014 The Advisory Board

Source: 2014 Primary Care Consumer Choice Survey, Marketing and Planning Leadership Council

Emerging Trends

VALUE PROPOSITION	HEALTH SYSTEM CHALLENGE
Patient Engagement	As systems assume more risk for patient outcomes, hospital leaders search for cost-effective ways to directly involve patients in preventive health maintenance.
Longitudinal Data Collection	Provider organizations are increasingly responsible for outcomes tied to patient decisions that occur outside of the supervision of a health care professional.
Competitive Advantage	Due to provider shortages, systems have increasingly limited resources to provide accessible, holistic care for a growing number of patients.

What are the emerging trends that impact the adoption of wearables?

Rising Interest in Health Data — The consumer trend toward the "quantified self" presents a new opportunity to generate new revenue from individuals invested in obtaining and analyzing their own health data.

Advancing Care Innovation — Hospitals and health systems seek inventive, cost-effective ways to retain and engage technology-savvy, highly engaged patient populations.

Expansion of FDA Device Approvals — The FDA is adjusting the device approval process to allow for new low-risk devices oriented toward wellness to more quickly enter the market.

39.5 million Number of U.S. adults using wearable devices in 2015.[4]

51% Percent of Millennials with major chronic conditions that use technology to monitor their health status.[5]

100 Estimated number of digital health solutions approved by the FDA by 2018, up from 33 in 2014.[6]

The Advisory Board Company .Sources: "Wearable Tech Market," *Vandrico, Inc,* May 2016.

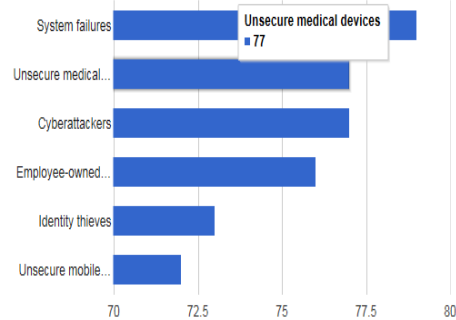## And then… Privacy Vulnerabilities
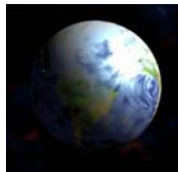
Hollywood hospital pays $17,000 in bitcoin to hackers; FBI investigating

Types of cyberattacks healthcare providers face

Percentage of organizations struggling with a particular attack.
Source: Ponemon Institute

HealthIT News, March 2016

Detect, Respond, and Recover

Secure	Vigilant	Resilient
The ability to protect critical assets against known and emerging threats by investing in security controls, preventative measures	The ability to reduce detection time and detect the unknown and build situational awareness to stay a step ahead	The ability to manage cyber incidents as business crises, to quickly stop the bleeding, recover and resume normal operations
Program Design and Governance	Risk and Security Monitoring	Incident Response Preparation
Infrastructure and Application Security	Vulnerability Management	Cyber Crisis Management
Privacy and Data Protection	Security Operations Center Optimization	Cyber Incident Response
Secure Software Enablement	Threat Intelligence and Analytics	Incident Recovery

33 Deloitte Cybersecurity services

Patient Trust is Vital

- While there's evidence that organizations are better controlling data loss, today's attackers are becoming much more targeted and sophisticated

- Regardless of who perpetrates the attack, what's on the line is trust.

Tom Sullivan, IT Healthcare News, 3.16.17

QUESTIONS ?