

Presentation to Advisory Committee on
Interdisciplinary, Community-Based Linkages

Advancing Population Health Through Health Information Exchanges and Informatics

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KU SCHOOL OF
NURSING
The University of Kansas

Disclosure



I have no relationship with a commercial interest, product or service related to the content of this educational activity

Agenda

- Healthcare reform – how did we get here?
- Biomedical informatics and potential value
- Health information exchange & barriers
- Population health and future needs
- Recommendations

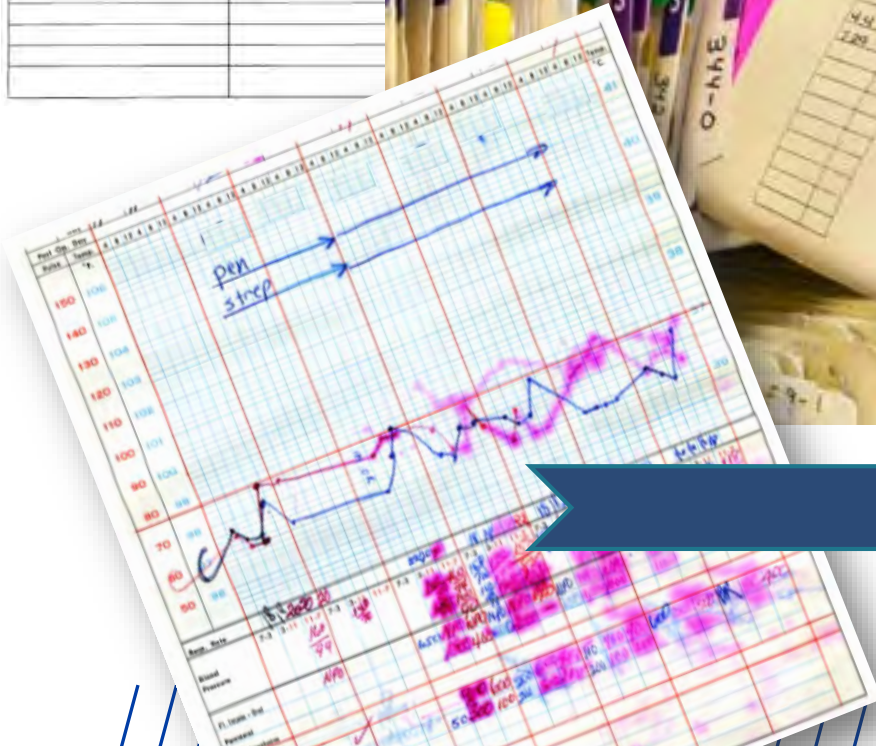
The Perfect Storm

- Paper to electronic evolution
- Technology revolution
- Venture capital & unique partnerships
- Business model change



Paper Charts to Electronic Medical Records

NURSING DIAGNOSIS	NURSING INTERVENTIONS	EVALUATION
Ineffective breathing pattern HT obstructive sleep apnea with associated pain	1. Auscultate breath sounds 5 4hr 2. Count RR to 7 2h while on O ₂	1. SpO ₂ clear on O ₂
Potential for infection HT antibiotic infusion & indwelling catheter	1. Assess for signs & symptoms of infection	
Altered bowel elimination HT abdominal surgery	1. Restrict oral food gradually 2. Assess for distention & tolerance when begins taking s/foods	





+ HOSPITAL +

**We do the
best at
sick care!**

Hospital USA

St Peters Square in 2005



St Peters Square in 2013



SIRI: Alexa, is it safe to take Ibuprofen while taking penicillin?

Alexa: Yes, SIRI you may take these two medications without harm.

SIRI: Thank you Alexa.



Venture Capital Investment

- \$28.8 Billion Raised in 2018



HealthData Management
Venture capital investment soars in healthcare IT
By Fred Bazzoli
Published October 16 2017, 4:06pm EDT

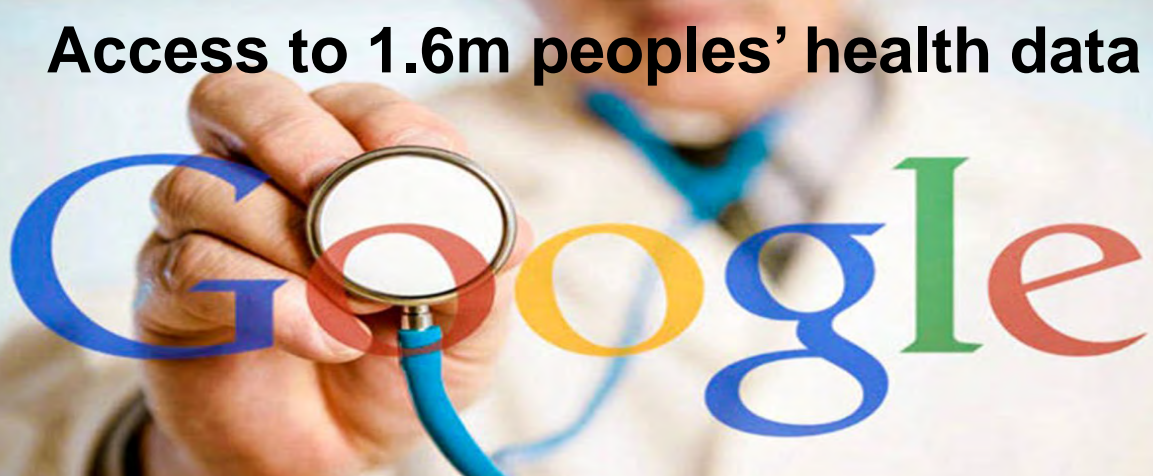
Venture capital funding for emerging healthcare companies in the first nine months of 2017 has already reached an all-time record in excess of \$5 billion in



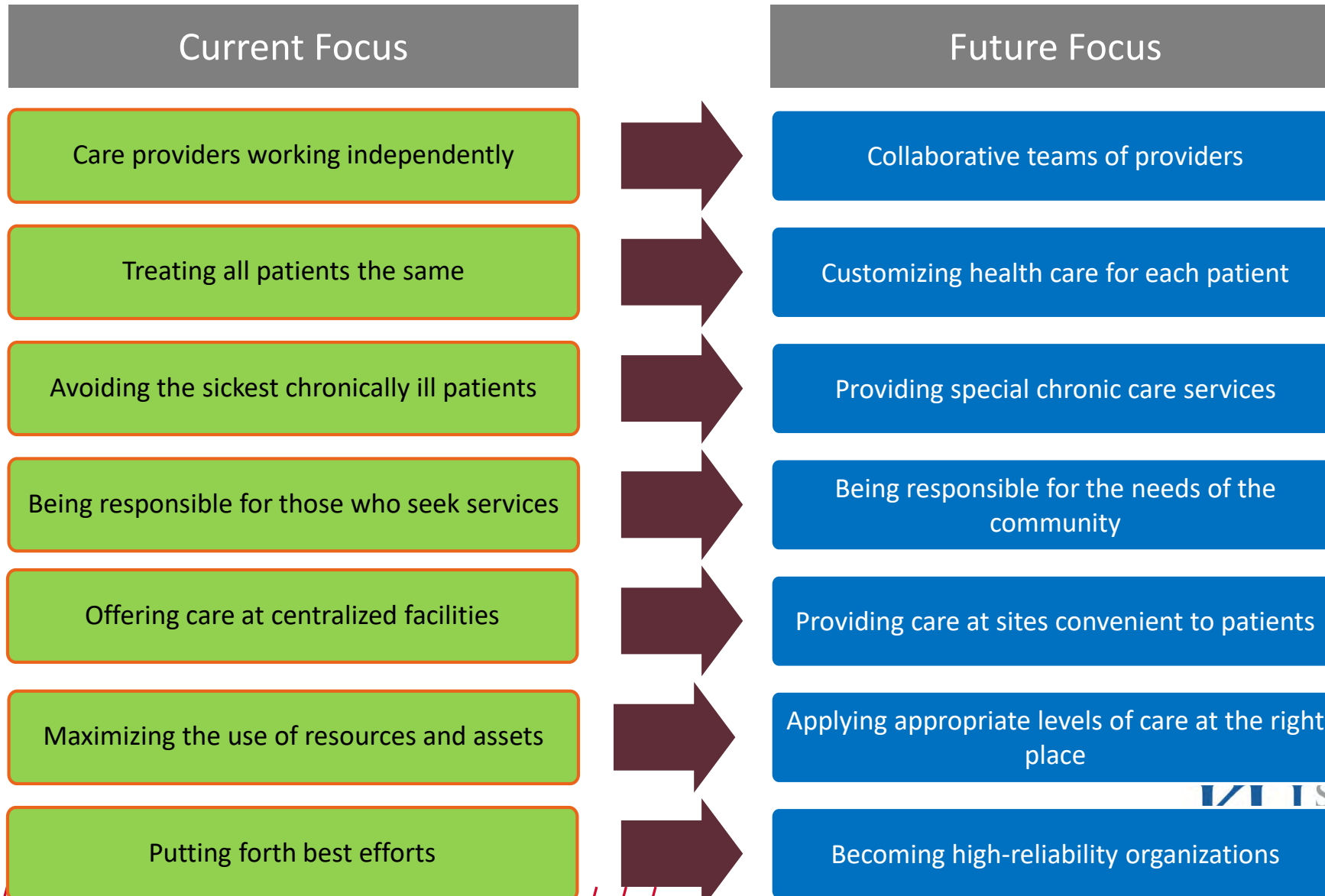
Amazon, Berkshire Hathaway and JPMorgan Team Up to Try to Disrupt Health Care



Access to 1.6m peoples' health data



Healthcare Business Model Changes

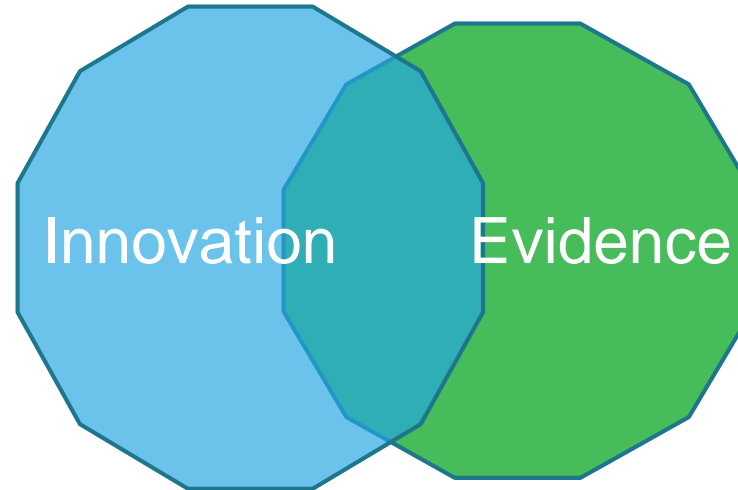


Evidence Based Innovation

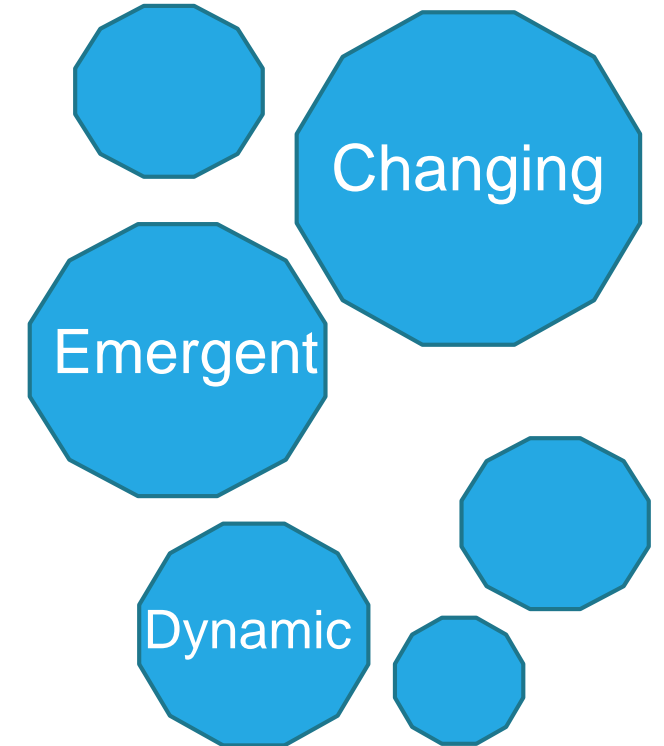
Evidence Based Practice



Evidence-Based Innovation



Innovation Process



It is time to deploy a new set of tools, metrics and techniques to transparently and actively manage the innovation process

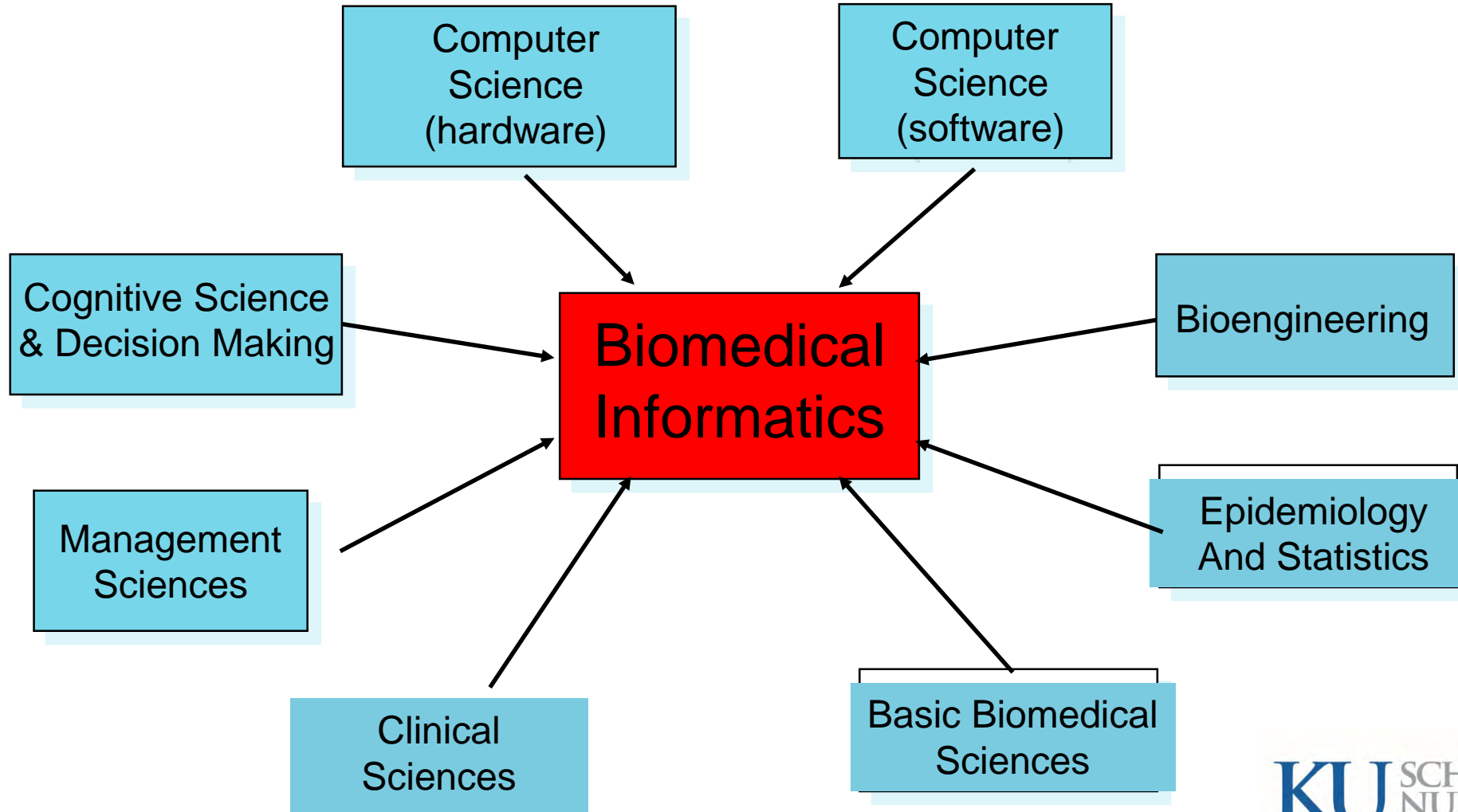
Definition

Biomedical informatics is the interdisciplinary field that studies and pursues the effective uses of biomedical data, information, and knowledge for scientific inquiry, problem solving, and decision making, motivated by efforts to improve human health.

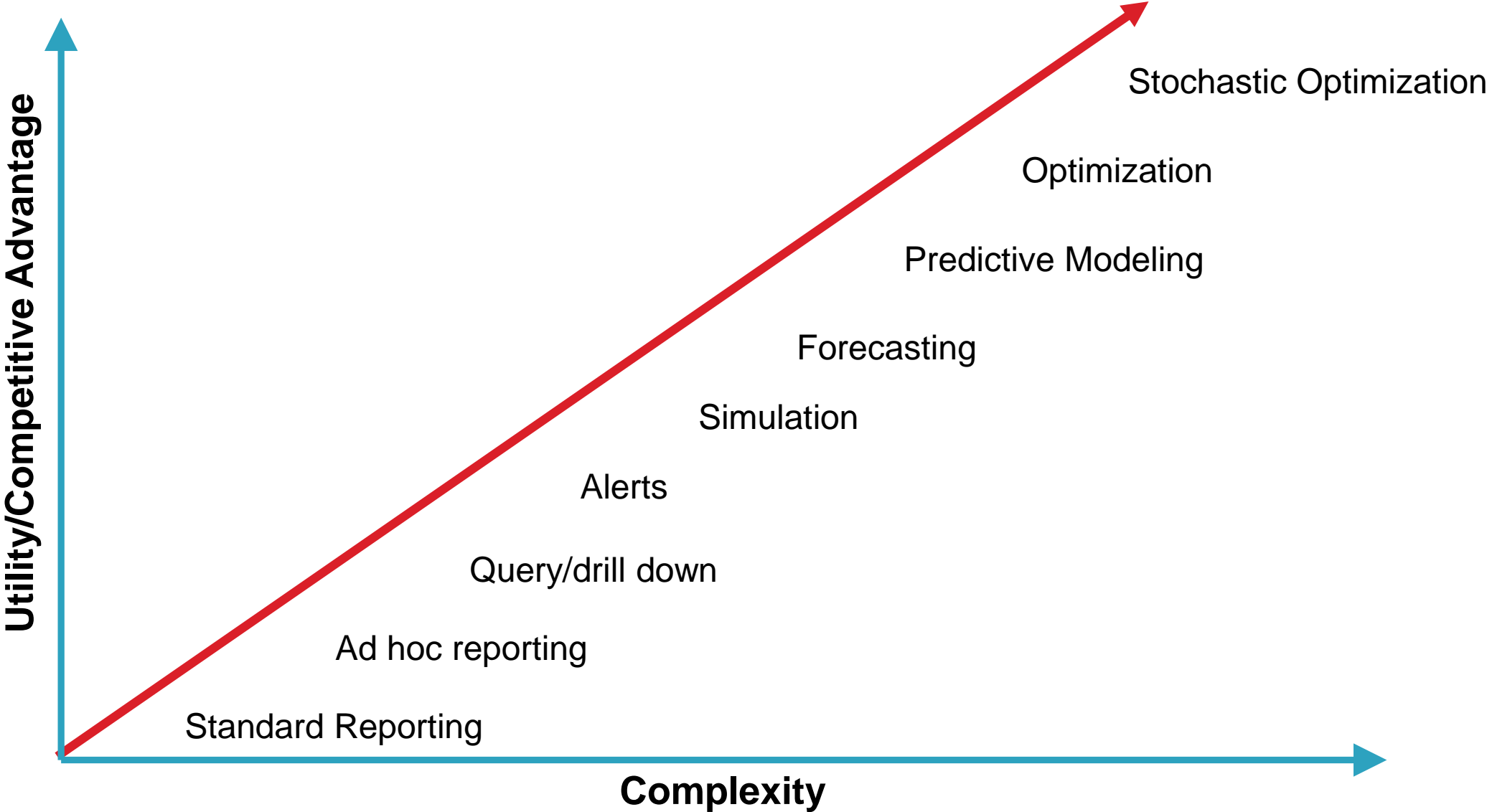
Kulikowski, C. A., et al (2012). AMIA Board white paper: definition of biomedical informatics and specification of core competencies for graduate education in the discipline. JAMA. doi:10.1136/amiajnl-2012-001053



Interdisciplinary Nature of Biomedical Informatics

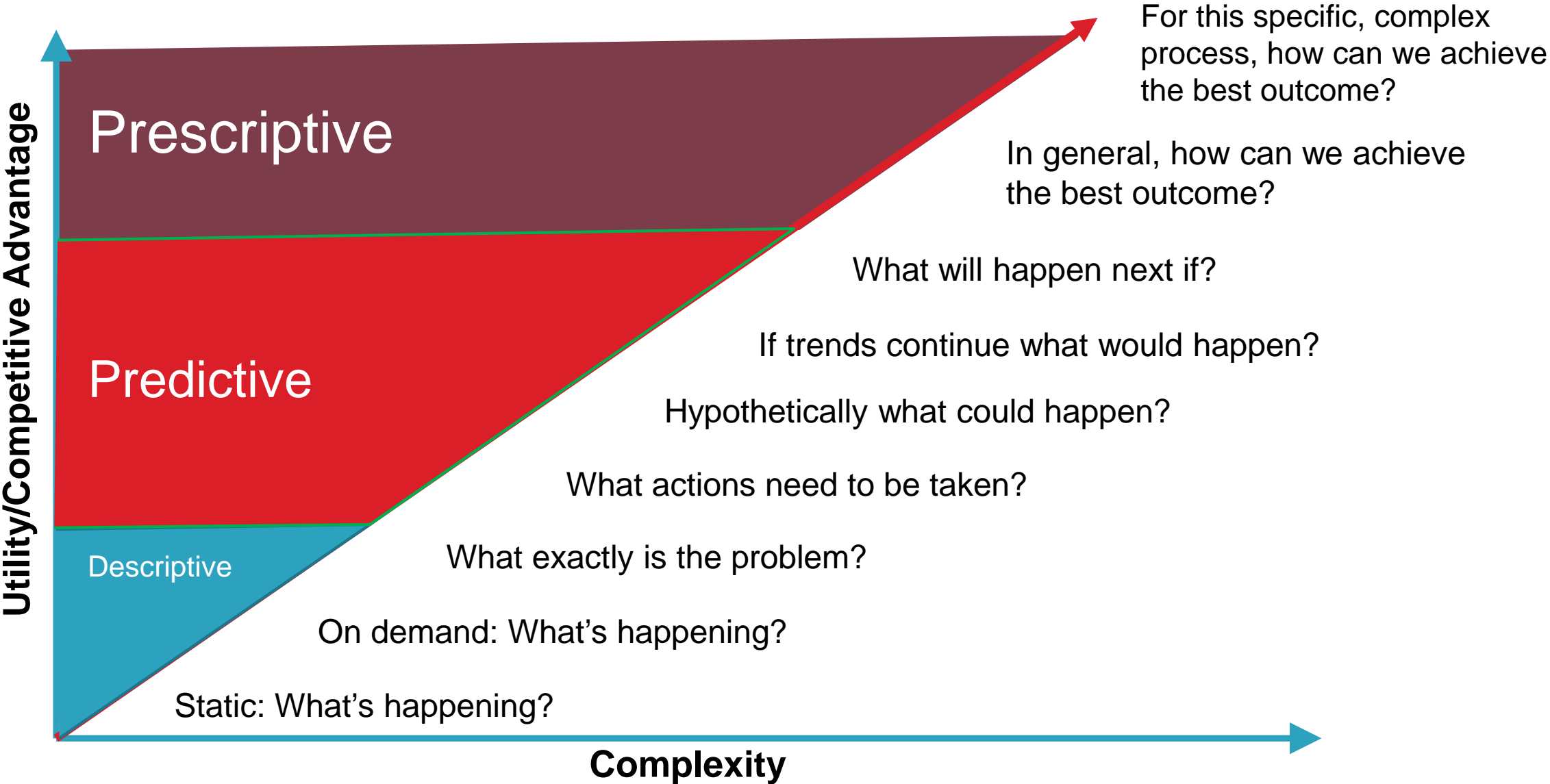


Clinical Intelligence and Analytics



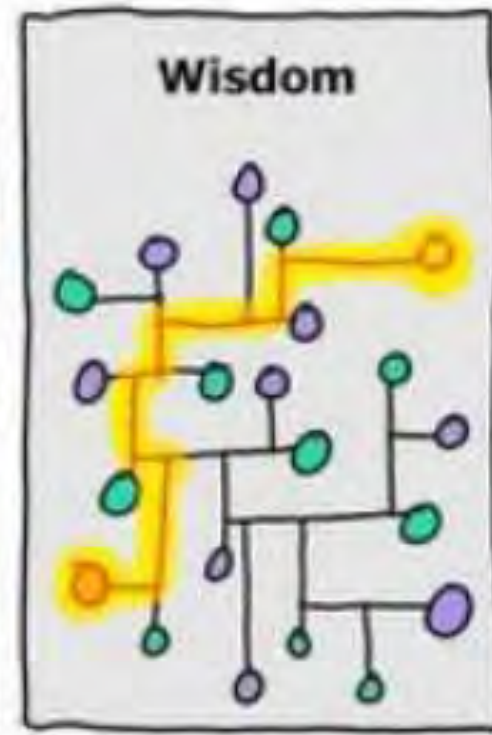
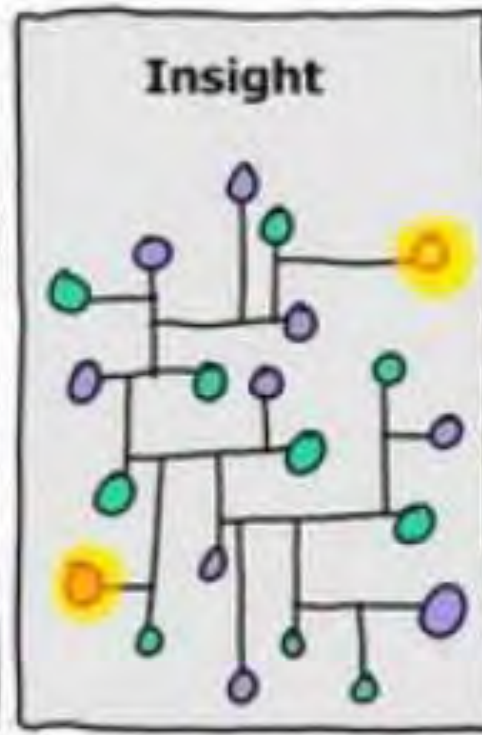
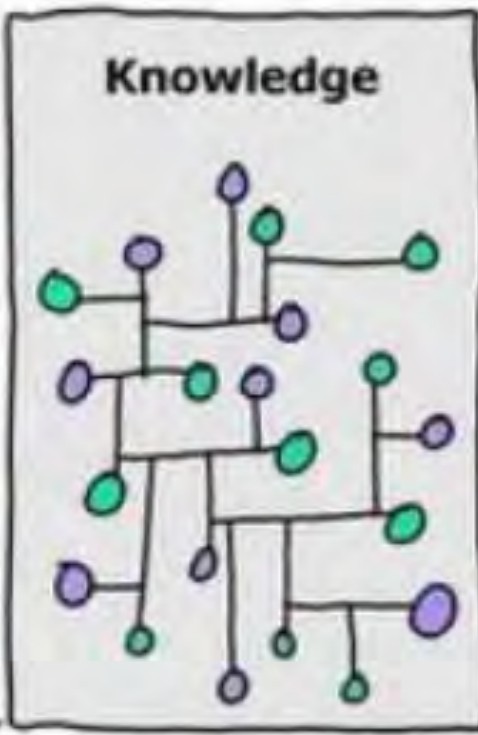
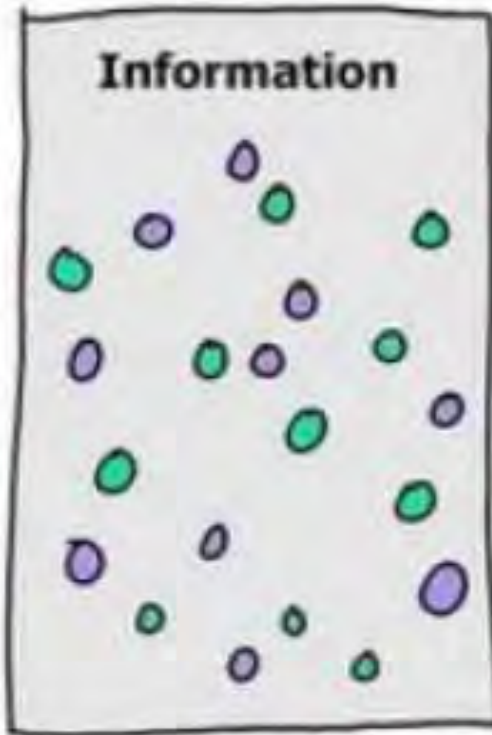
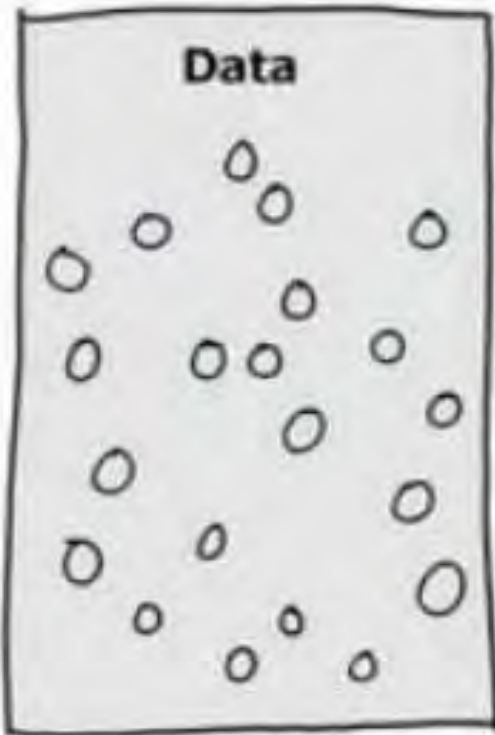
Adapted from *Competing on Analytics*, Davenport and Harris, 2007

Clinical Intelligence and Analytics



Adapted from *Competing on Analytics*, Davenport and Harris, 2007

Making Healthcare Data Actionable



01_15_2016 0.073
02_20_2016 0.065

A1C Results
01_15_2016 0.073%
02_20_2016 0.065%

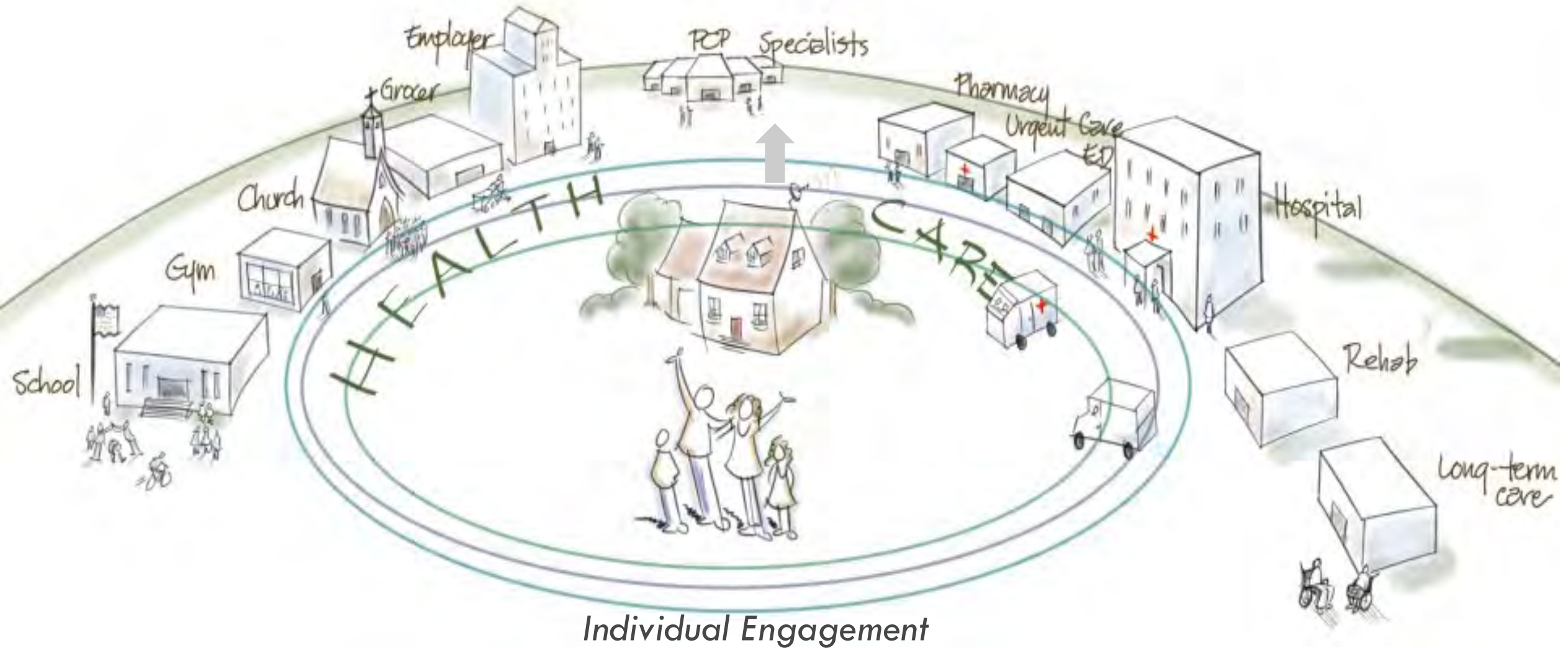
A1C level > 6.5%
indicates diabetes

Two results > than
6.5 %
Patient is diabetic

Health coach &
dietitian
interventions
reduce the A1C%
by 20% in 3
months



Electronic Healthcare **System** to Support Population Health



Health Information Exchange

The demand for electronic health information exchange among care professionals is growing along with nationwide efforts to improve the quality, safety, and efficiency of health care delivery.

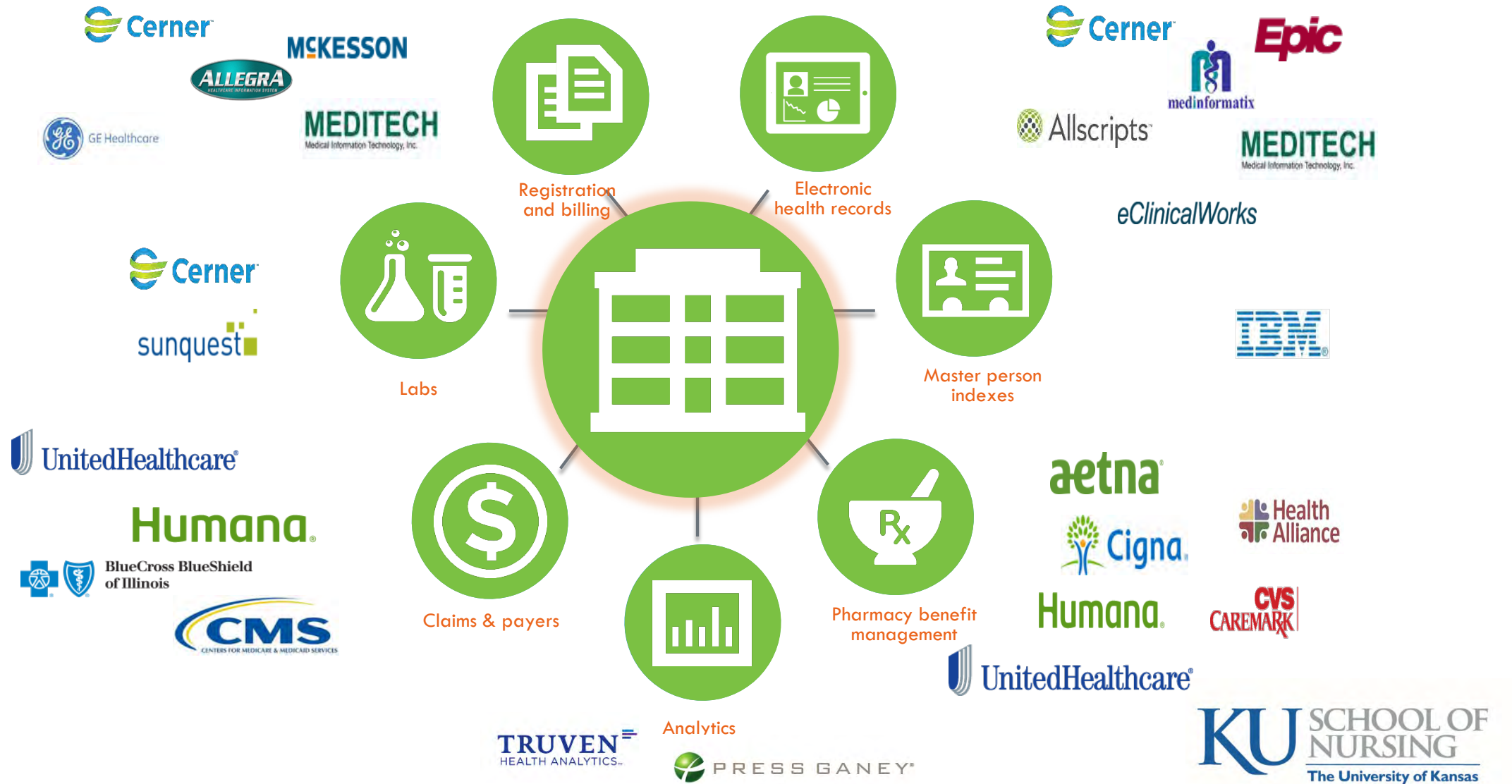
Meaningful use requirements, new payment approaches that stress care coordination, and federal financial incentives are all driving the interest and demand for health information exchange.

Health Information Interoperability

Interoperability occurs when **information flows freely** across organizational, supplier and geographic barriers



Enable Data from Multiple Traditional Sources



Terminology Barriers are Pervasive

SNOMED CT
42343007
Congestive
heart failure

ICD 9 438
Congestive
heart failure,
unspecified

ICD-10 -
150.9
Heart failure,
unspecified

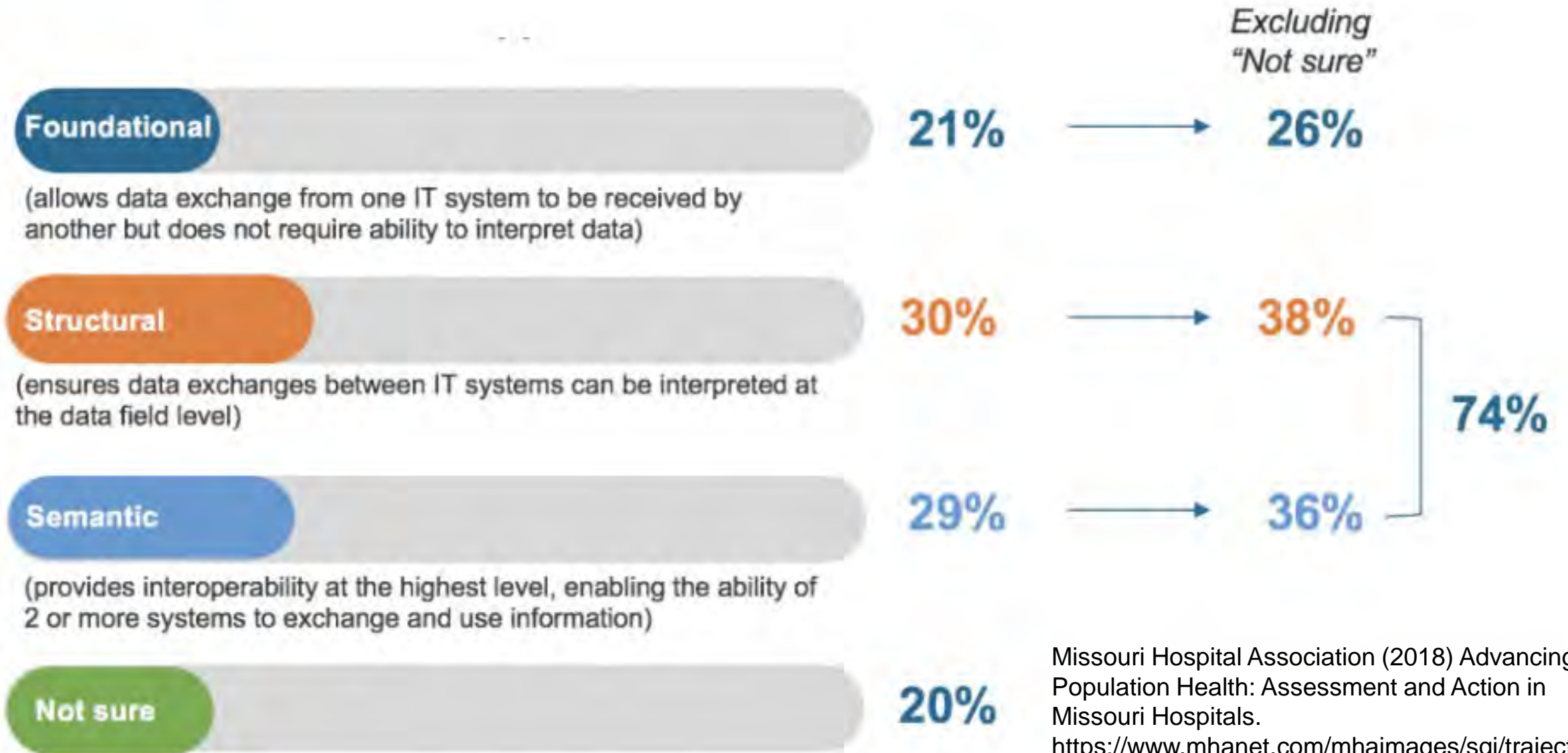
LOINC 30934 4
Type natriuretic
peptide

My doctor
said it was
heart
failure

RxNorm
3407
Digoxin



Health Information Interoperability



Missouri Hospital Association (2018) Advancing Population Health: Assessment and Action in Missouri Hospitals.
https://www.mhanet.com/mhaimages/sqi/trajectories/Trajectories_May2018_PopulationHealth.pdf

Interoperability Beyond the Hospitals

Maturity Scale	Acute Care	Critical Access	Behavioral/ Rehab.	Long-term Acute Care	TOTAL
PRE-FOUNDATIONAL 1	0	2	1	1	4
PRE-FOUNDATIONAL 2	5	10	7	2	24
FOUNDATIONAL	20	8	1	0	29
PROFICIENT	11	2	0	0	13
TRANSFORMATIONAL	6	5	0	0	11

Missouri Hospital Association (2018) Advancing Population Health: Assessment and Action in Missouri Hospitals. https://www.mhanet.com/mhaimages/sqi/trajectories/Trajectories_May2018_PopulationHealth.pdf



Definition



..”an approach that focuses on interrelated conditions and factors that influence the health of population over the life course, identifies systematic variations in their patterns of occurrence and applies the resulting knowledge to develop and implement policies and actions to improve the health and well-being of those populations.”

Kindig, DA, Stoddart G. (2003). What is population health? American Journal of Public Health, 93, 366-369.

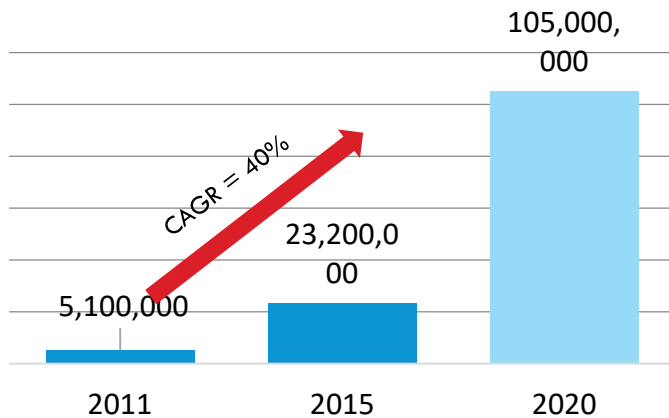


Growing Need for Population Health



ACO Growth

Growth in ACO Covered Lives

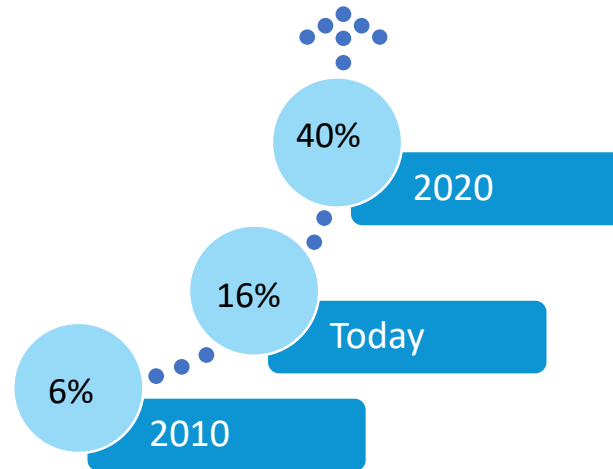


Source: Leavitt Partners, *Projected Growth of Accountable Care Organizations*, December 2015



At-Risk Contracts

Health System's Percent of Revenue Risk-Based



Source: Leerink Partners
MEDACorp Survey, June 2015



Growth Drivers



Belief at-risk models are a better way of achieving triple aim



Federal/State incentives & penalties



Growth in Commercial Plans – *Aetna estimates 70% of contracts value-based by 2020*



Success of initiatives tied to value-based care



Global phenomenon – *triple aim will not be limited to US healthcare market*

What **Makes** Us Healthy



10%
ACCESS
TO CARE



20%
GENETICS



20%
ENVIRONMENT



50%
HEALTHY
BEHAVIORS

What We **Spend** On Being Healthy



4%
HEALTHY
BEHAVIORS



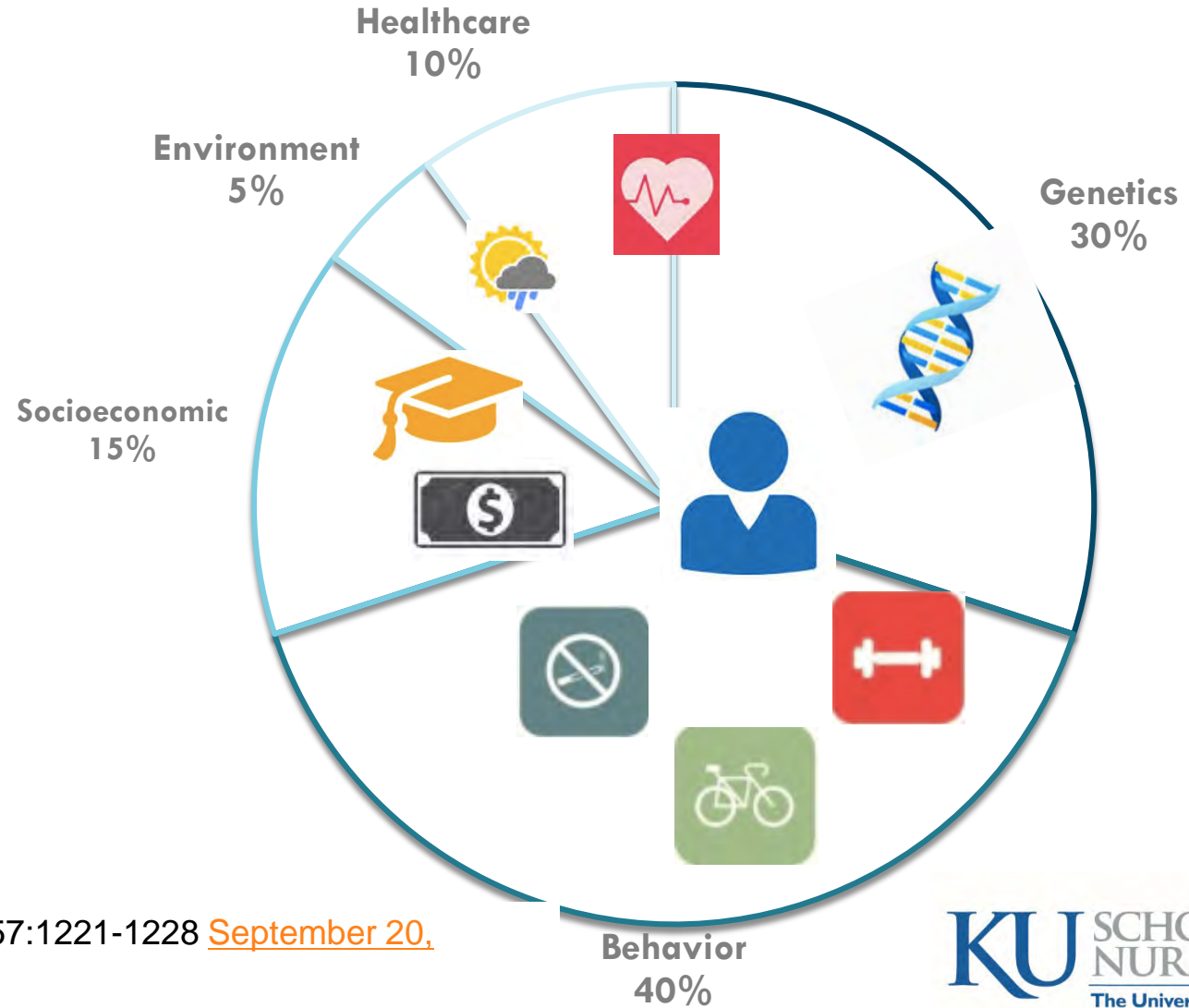
8%
OTHER



88%
MEDICAL
SERVICES

Enable Data from Non-Traditional Sources

Social Behavioral Determinants of Health

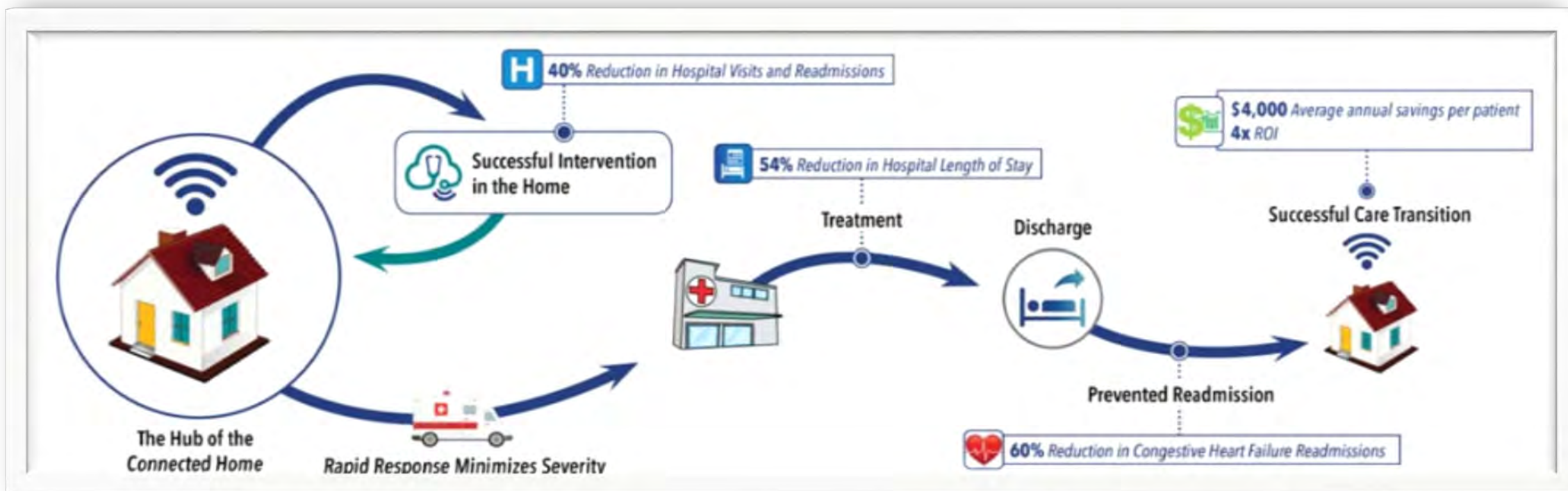


Steven A. Schroeder, M.D. N Engl J Med 2007; 357:1221-1228 [September 20, 2007DOI: 10.1056/NEJMsa073350](https://doi.org/10.1056/NEJMsa073350)



2018 HHS Secretary Alex Azar

- Give consumers greater control over health information
- Encourage transparency
- Use experimental models (Medicare & Medicaid) to drive value and quality
- Remove government burdens



Disrupting the Myth – All Healthcare is Local

Mercy+Virtual



Rural Kansas – Harper County



Re-inventing Rural Healthcare



EAT WELL



GET WELL



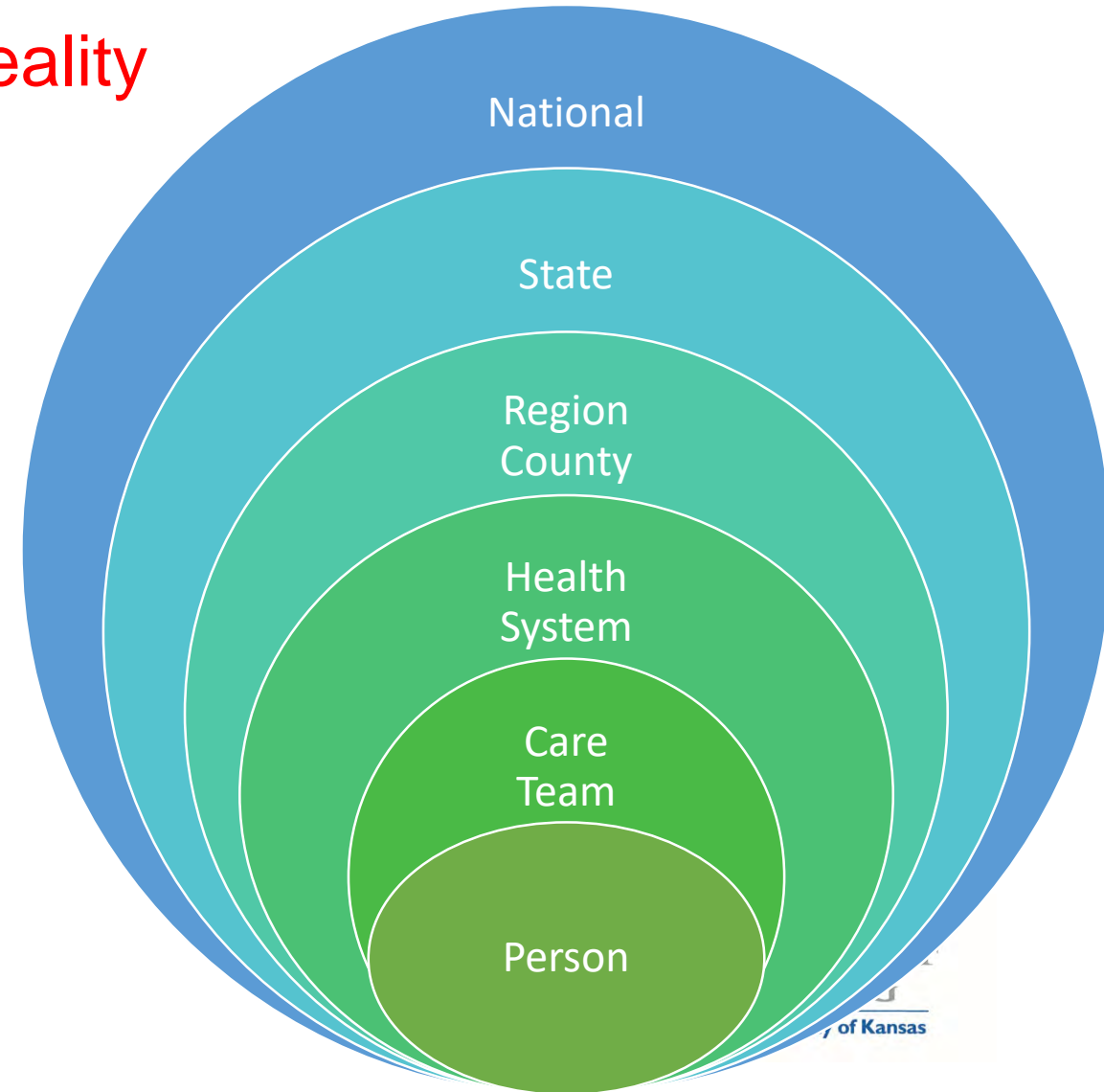
STAY WELL



Recommendation 1

Make patient (family) centered care a reality

- Patient's own their healthcare data (not the medical records department)
- Patient's healthcare data are stored virtually (cloud based)
- Patient's decide who has access and have sole responsibility to grant access
- Use "adherence" rather than "compliance"



Recommendation 2

Leverage biometric technology

- Patients have a unique national identifier
- Available for patients and healthcare providers
- Accuracy to better identify and match patients
- Security to log into the computer
- Usability to faster access



Recommendation 3

Clarify and establish a nationwide approach for privacy and security

- Establish electronic patient-provider communications beyond patient-portals (eHealth)
- Develop social media policies
- Remove state boundaries for patient's consent for treatment



Recommendation 4

Stimulate the demand for interoperability

- Embrace evidence based innovation
- Continue to invest in standards that map to nationally accepted terminologies (RxNorm, SNOMED CT, LOINC, SMART, FHIR, etc.)
- Increase the workforce needed to develop and map data national standards
- Leverage data already present to create electronic clinical quality measures (eCQM)
- Reduce the regulatory burden and re-documentation

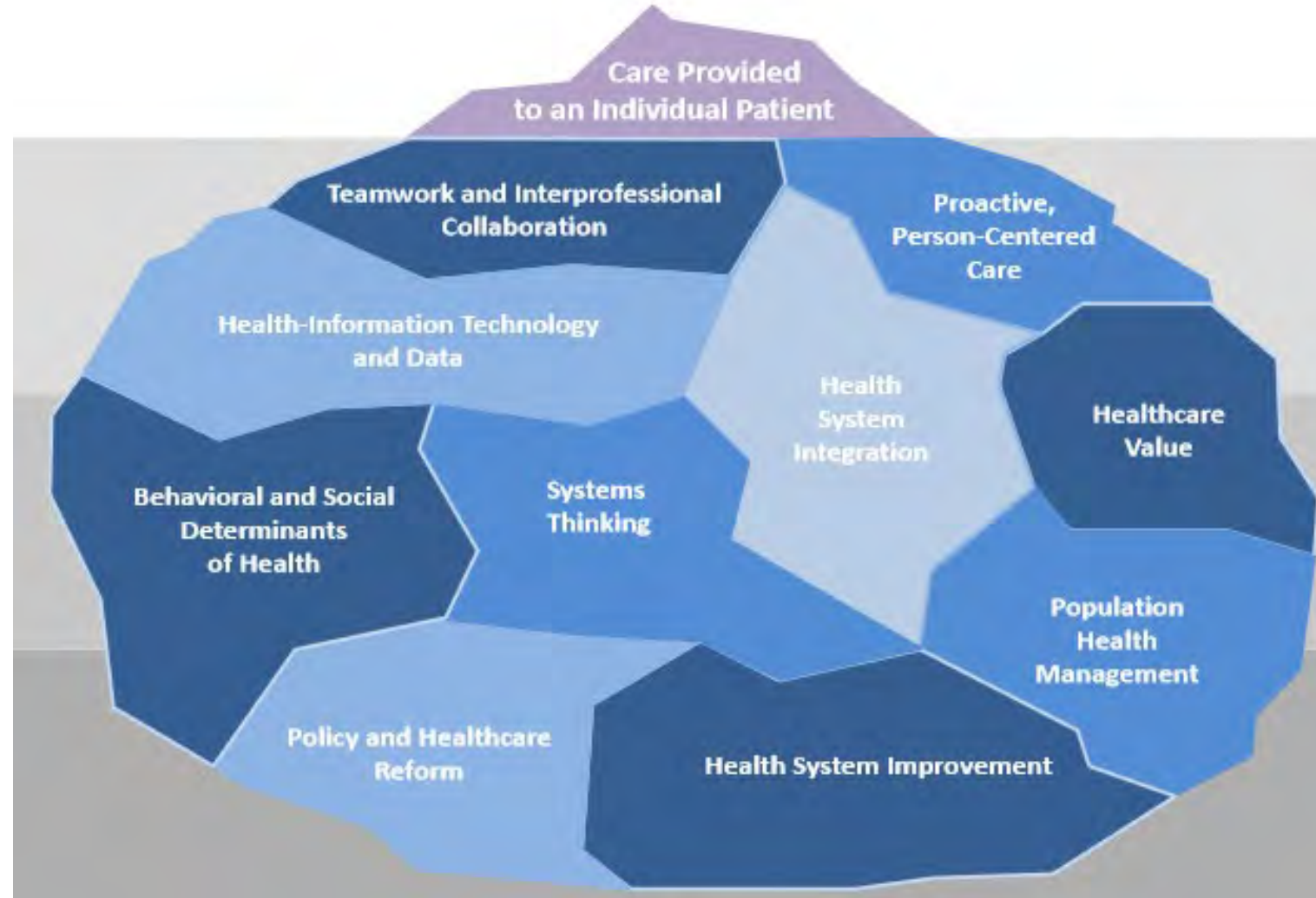


Recommendation 5

Change the paradigm

Health IT & bio-informatics are direct patient care

We no longer think of an electronic health record, but a living breathing learning health system





Thank you for your time
Questions?

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