Interoperability: What does the future hold?

John Glaser, PhD
Senior Vice President, Population Health

June 23, 2016

Interoperability

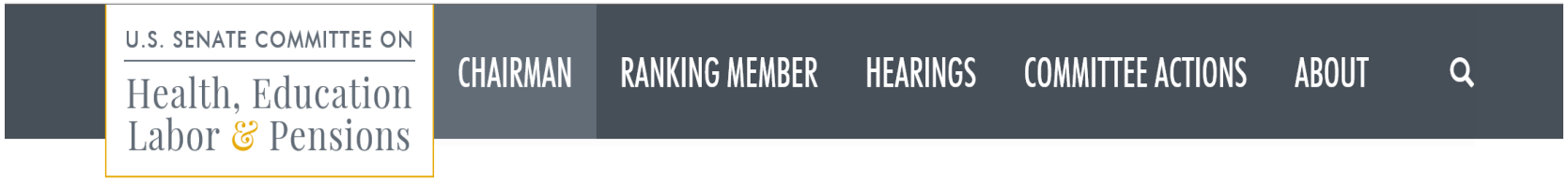
Interoperability occurs when **information flows freely** across organizational, vendor, technology and geographic barriers.

Interoperability will be molded by several factors

- Federal government legislation and regulations
- Provider consolidation and interoperability speciation
- Industry collaborations
- Expansion of the range of “data”
- Evolution of the interoperability “stack”

Federal government legislation and regulations

Congress is focusing on interoperability



Home / Chairman / Chairman's Newsroom / Press

01.20.16

Alexander, Murray Release Bipartisan Senate Health Committee Staff Draft of Bill to Help Improve Health Information Technology for Doctors & Their Patients

Senate health committee seeks expert feedback to revise and improve upon draft legislation to help achieve interoperability

WASHINGTON, D.C., Jan. 20 – To inform the committee's final legislation, Senate health committee Chairman Lamar Alexander (R-Tenn.) and Ranking Member Patty Murray (D-Wash.) today released for feedback a staff discussion draft of the committee's bipartisan legislation to improve health information technology, including electronic health records.

The draft legislation released today is the product of a bipartisan, full committee health information technology working group announced by Alexander and Murray in April—as well as a series of bipartisan hearings in the committee.

Interoperability provisions in the draft HELP legislation

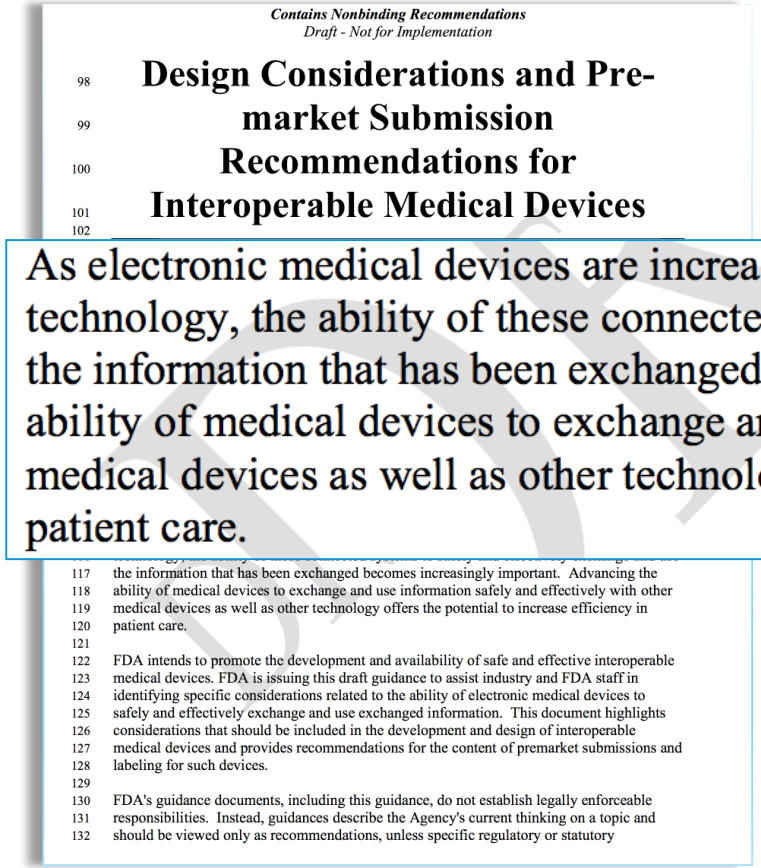
- Convenes existing data sharing networks to develop a model framework and common agreement for the secure exchange of health information across existing networks to help foster a “network of networks.”
- Creates a digital provider directory to both facilitate exchange and allow users to verify the correct recipient.
- Requires that HHS give deference to standards developed in the private sector.
- Creates a process for prioritizing the adoption of standards to focus on the most pressing problems faced by the health care community.
- Establishes an initial set of common data elements, such as a standard format for entering date of birth, to facilitate interoperability and streamline quality reporting.

Interoperability in Medicare Regulations: Beyond Meaningful Use

- Medicare Access and CHIP Reauthorization (MACRA) – “Doc Fix”
  - Established exchange of health information through interoperable EHRs a “national objective”
  - Secretary must establish metrics on how to measure interoperability by July 2016
  - Interoperability must be achieved by December 31, 2018
  - Information blocking
    - Effective April 16, 2016, participants in the EHR incentive programs must attest that they are not knowingly or willfully limiting the interoperability of certified EHR technology
- Physician Fee Schedule (PFS) 2016 NPRM
  - Upcoming appropriate use criteria (AUC) requirements will affect interoperability (due 11/2015)
  - Highlights importance of interoperability for ACOs
- Medicare Shared Savings Program (MSSP); Accountable Care Organizations (ACOs)
  - Encouragement to monitor the degree of interoperability. No concrete thresholds or standards.
- CHIP Programs
  - Seeking feedback on provider directory APIs. No concrete thresholds or standards.

FDA draft guidance – medical device interoperability

- Released January 26, 2016



Contains Nonbinding Recommendations
Draft - Not for Implementation

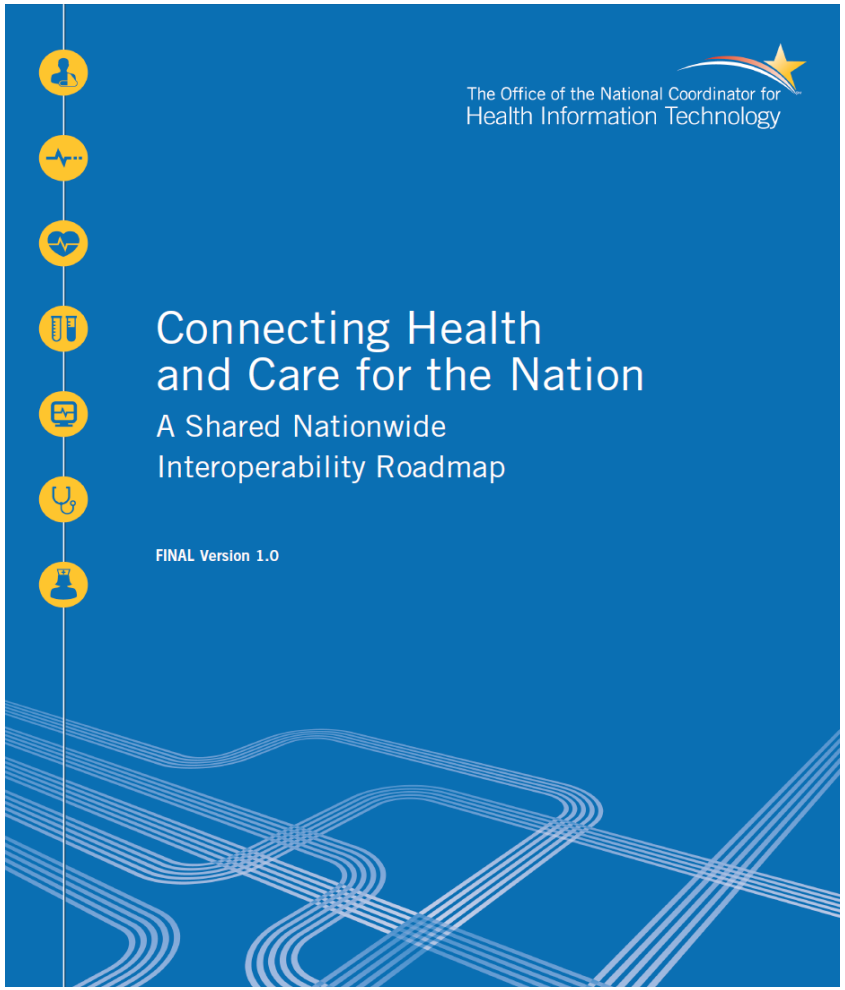
Design Considerations and Pre-market Submission Recommendations for Interoperable Medical Devices

As electronic medical devices are increasingly connected to each other and to other technology, the ability of these connected systems to safely and effectively exchange and use the information that has been exchanged becomes increasingly important. Advancing the ability of medical devices to exchange and use information safely and effectively with other medical devices as well as other technology offers the potential to increase efficiency in patient care.

FDA intends to promote the development and availability of safe and effective interoperable medical devices. FDA is issuing this draft guidance to assist industry and FDA staff in identifying specific considerations related to the ability of electronic medical devices to safely and effectively exchange and use exchanged information. This document highlights considerations that should be included in the development and design of interoperable medical devices and provides recommendations for the content of premarket submissions and labeling for such devices.

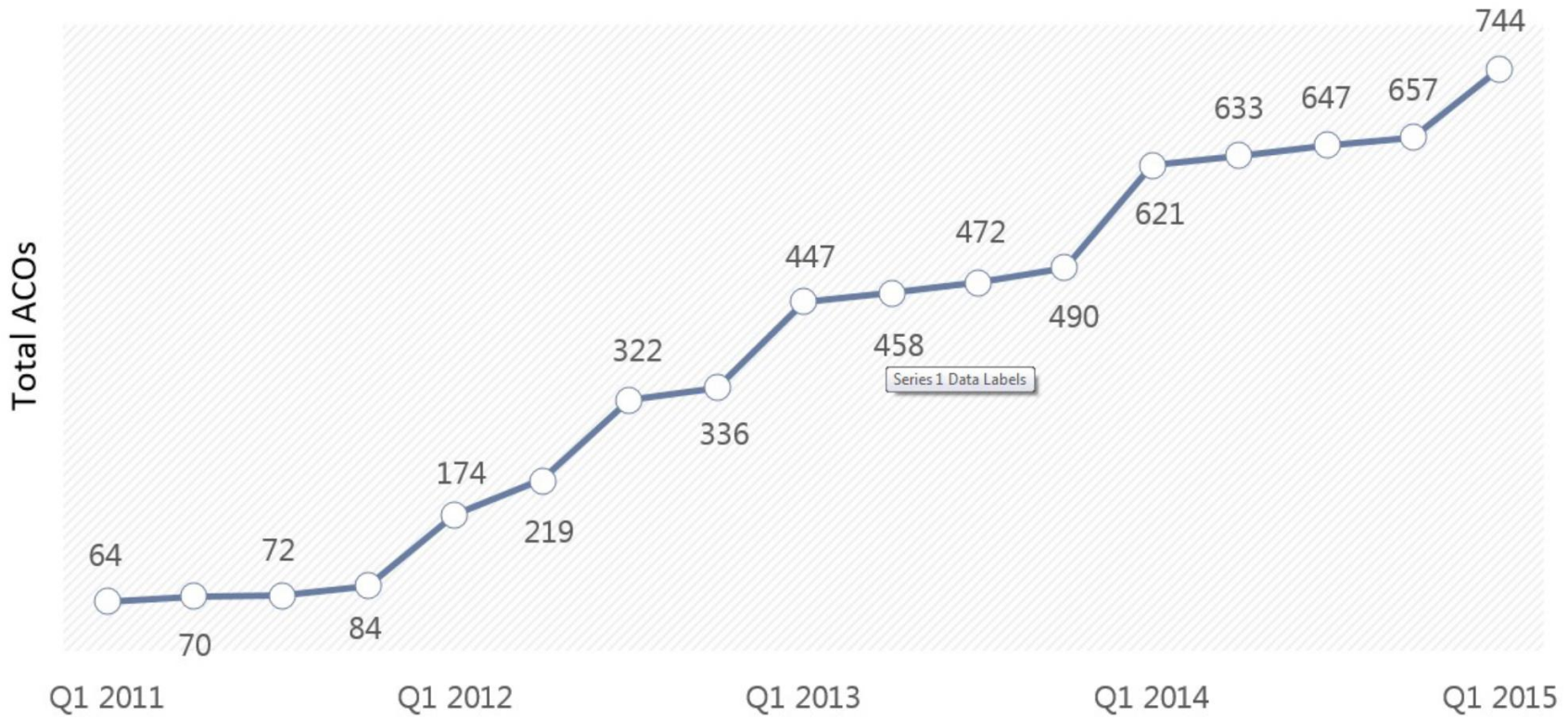
FDA's guidance documents, including this guidance, do not establish legally enforceable responsibilities. Instead, guidances describe the Agency's current thinking on a topic and should be viewed only as recommendations, unless specific regulatory or statutory

ONC and its FACAs and Working Groups will continue their focus



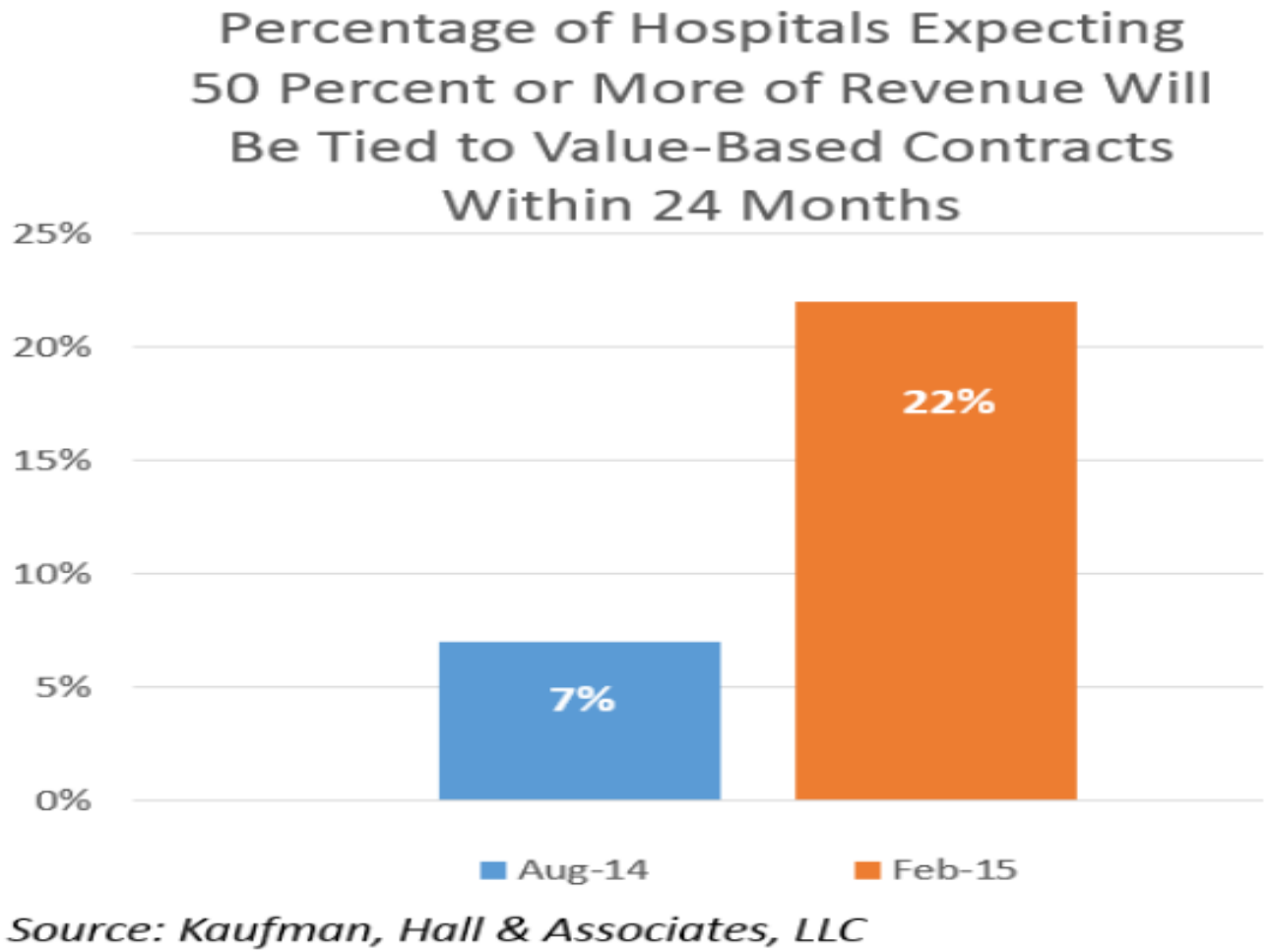
Provider consolidation and interoperability speciation

Accountable Care Organization growth



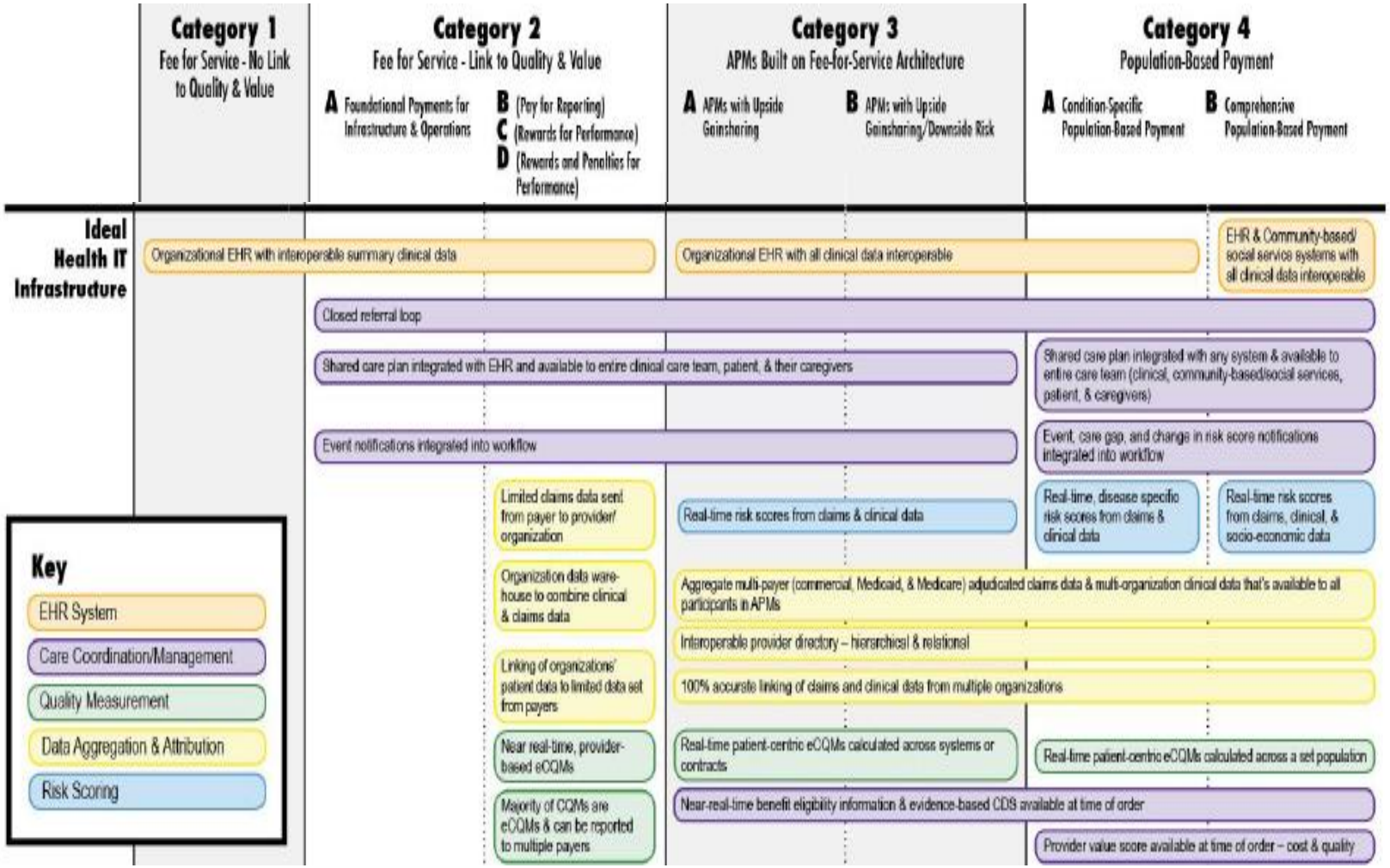
Growth And Dispersion Of Accountable Care Organizations In 2015, Muhlstein, Health Affairs

For providers the primary driver of interoperability is the move to value-based payment



Source: Kaufman, Hall & Associates, LLC

APM Health IT framework



Audacious Inquiry, ONC, 2016

ACOs will have multiple classes of HIE/interoperability

- Purpose
  - Insurance transactions
  - Supply chain
  - Devices
  - Prescriptions
  - Electronic health records data exchange
  - Shared applications
- Forms
  - Collectively owned versus privately held
  - Narrow versus broad focus
  - Horizontal versus vertical

Industry collaborations

Interbank consortium - SWIFT

- In 1973, 239 banks from 15 countries got together to solve a common problem: how to communicate about cross-border payments.
- The banks formed a cooperative utility, the Society for Worldwide Interbank Financial Telecommunication, headquartered in Belgium.
- SWIFT went live with its messaging services in 1977, replacing the Telex technology that was then in widespread use, and rapidly became the reliable, trusted global partner for institutions all around the world.
- The main components of the original services included a messaging platform, a computer system to validate and route messages, and a set of message standards.
- The standards were developed to allow for a common understanding of the data across linguistic and systems boundaries and to permit the seamless, automated transmission, receipt and processing of communications exchanged between users

www.swift.com

Interbank networks have different implementations

Major economy	Interbank network name
Australia	Electronic Funds Transfer at Point Of Sale (EFTPOS)
Canada	Interac
China	China Union Pay
France	Groupement des Cartes Bancaires CB
Germany	Girocard
Japan	Yucho
United Kingdom	LINK
United States	New York Currency Exchange (NYCE), Pulse, STAR

Uniform Grocery Product Council Board of Governors (1973)

• Robert A. Stringer, General Foods	• Fritz Biermeier, Red Owl Stores, Inc.
• K. Marvin Everts, Jr. Stokley Van Camp	• Alan Haberman, First National Stores, Inc
• William J. Hollis, American Can Company	• Arthur D. Juceam, Lehn & Fink Products
• Robert R Koenig, Super Valu Stores, Inc	• Curt Kornblau, Super Market Institute
• Robert F. Lee, Johnson & Johnson	• Donald P. Lloyd, Associated Food Stores, Inc.
• Thomas P. Nelson, General Mills, Inc	• William E. Oddy, Jewel Food Stores
• John L. Strubbe, Kroger Company	• Wilbur Stump, Stump's Enterprises, Inc.

Advancing healthcare interoperability through several industry collaborations

commonwell® HEALTH ALLIANCE

Argonaut Project

eHealth

the sequoia project

HIMSS®

EHRA HIMSS Electronic Health Record Association MEMBER

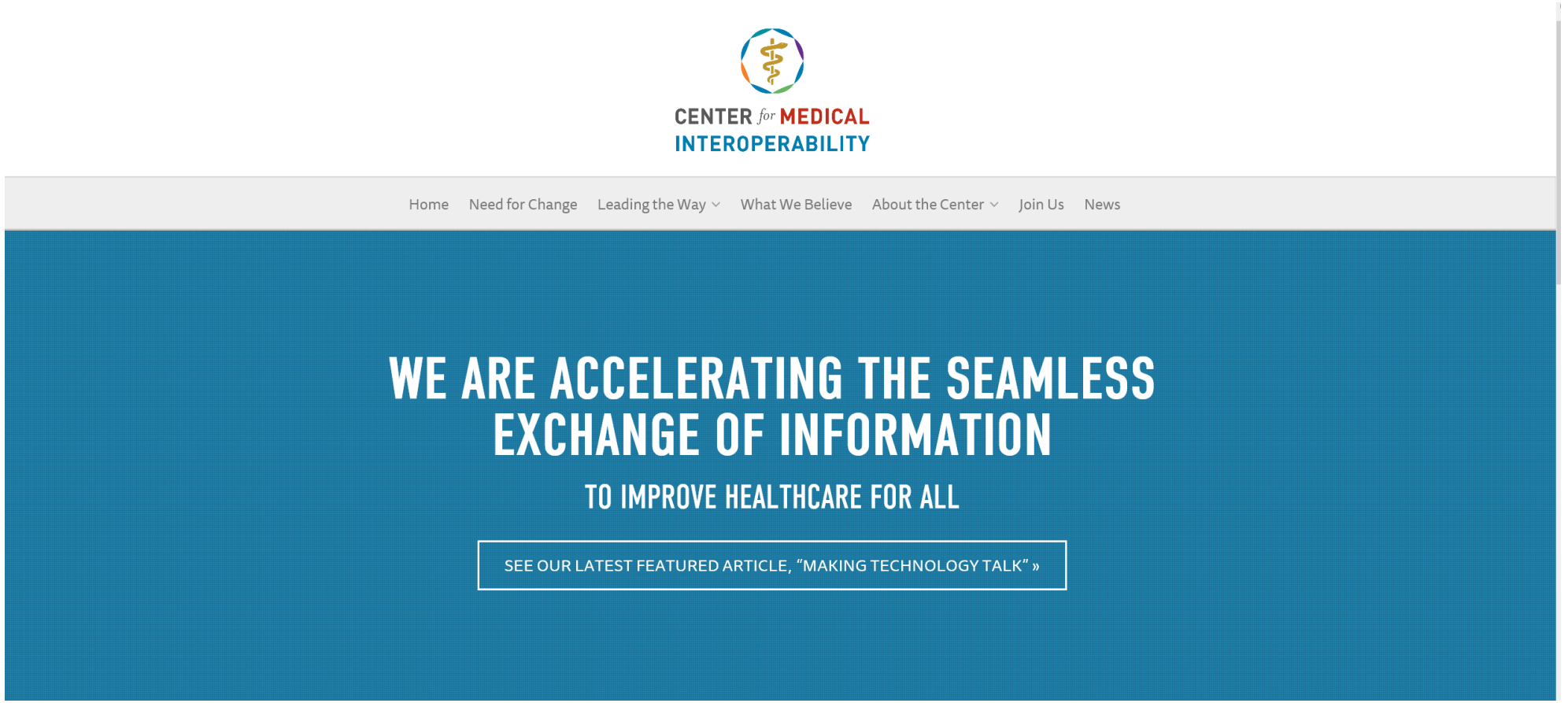
KLAS® ACCURATE. HONEST. IMPARTIAL.

CommonWell Network continues to grow – 40 members

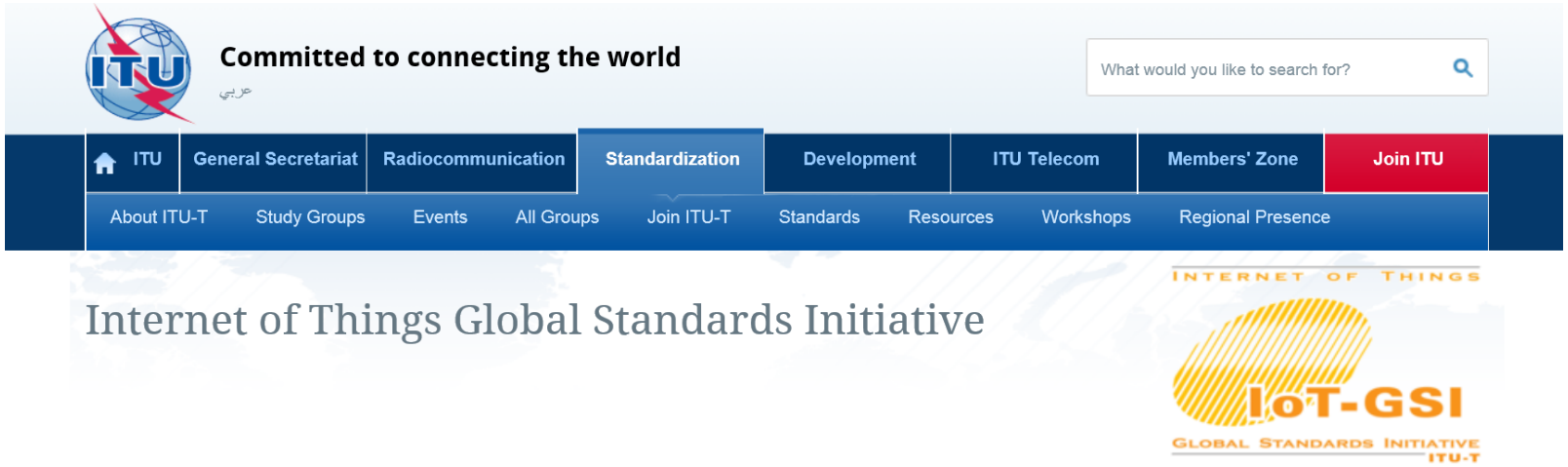
Argonauts – vendor collaboration to develop interoperability APIs

- Deliverables
  - Standard set of “core” FHIR resources and profiles
  - Ensure broad industry support (vendors, providers, and innovators)
- App use-cases
  - Provider apps – EHR workflow
  - Patient apps – portal + phone app
- Authentication and Authorization
  - OAuth2 profile for healthcare

Device interoperability collaborative



Early efforts to establish IoT standards



Committed to connecting the world

عربي

What would you like to search for?

ITU | General Secretariat | Radiocommunication | Standardization | Development | ITU Telecom | Members' Zone | Join ITU

About ITU-T | Study Groups | Events | All Groups | Join ITU-T | Standards | Resources | Workshops | Regional Presence

Internet of Things Global Standards Initiative

INTERNET OF THINGS

IoT-GSI

GLOBAL STANDARDS INITIATIVE ITU-T

YOU ARE HERE HOME > ITU-T > GLOBAL STANDARDS INITIATIVES > IOT

SHARE

The Global Standards Initiative on Internet of Things (IoT-GSI) concluded its activities in July 2015 following TSAG decision to establish the new Study Group 20 on *"IoT and its applications including smart cities and communities"*. All activities ongoing in the IoT-GSI were transferred to the SG20. For more information see SG20 webpage or contact tsbsg20@itu.int.

IoT-GSI aimed to promote a unified approach in ITU-T for development of technical standards (Recommendations) enabling the Internet of Things on a global scale. ITU-T Recommendations developed under the IoT-GSI by the various ITU-T Questions - in collaboration with other standards developing organizations (SDOs) – will enable worldwide service providers to offer the wide range of services expected by this technology. IoT-GSI also aimed to act as an umbrella for IoT standards development worldwide.

The **Internet of Things (IoT)** has been defined in Recommendation ITU-T Y.2060 (06/2012) as a global infrastructure for the information society, enabling advanced services by interconnecting (physical and virtual) things based on existing and evolving interoperable information and communication technologies.

Meetings | Related Events | News

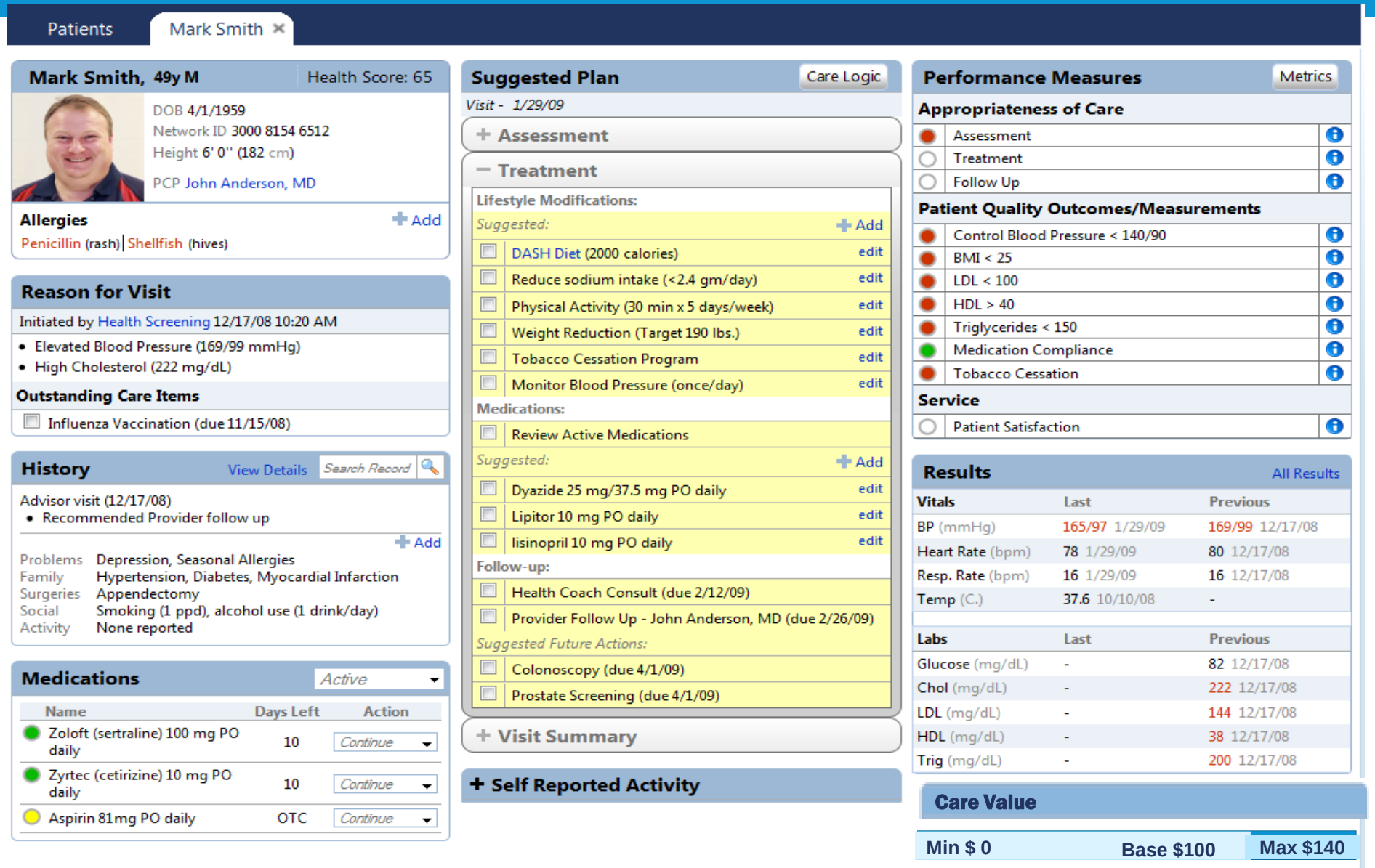
Twelfth and last event
Geneva, 14-20 July 2015

- Convening letter (TSB Circular 154)
- Meeting documents
- 12th IoT-GSI TSR Report new
- IoT Workplan new

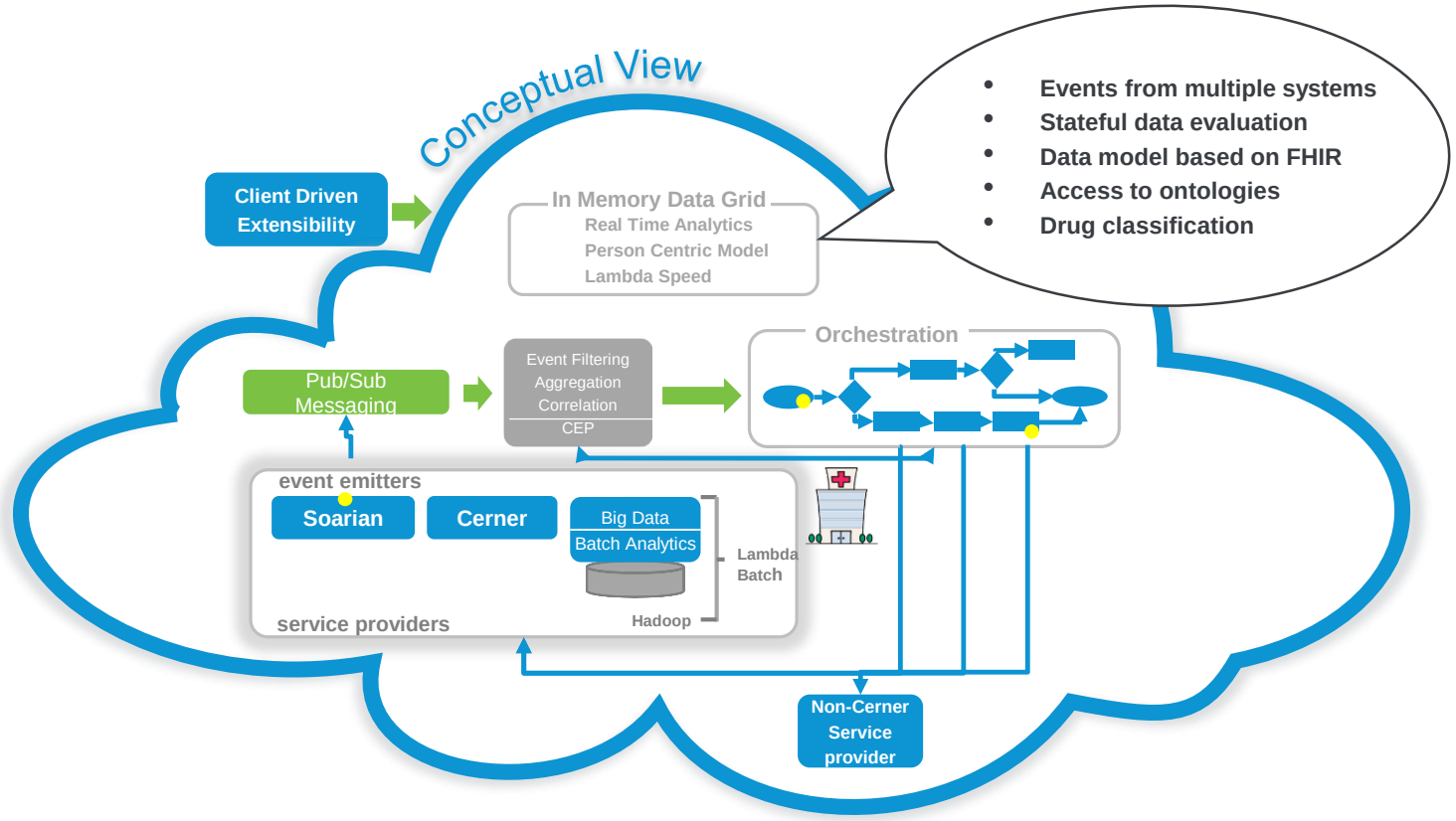
Past IoT-GSI Events

Expansion of the range of “data”

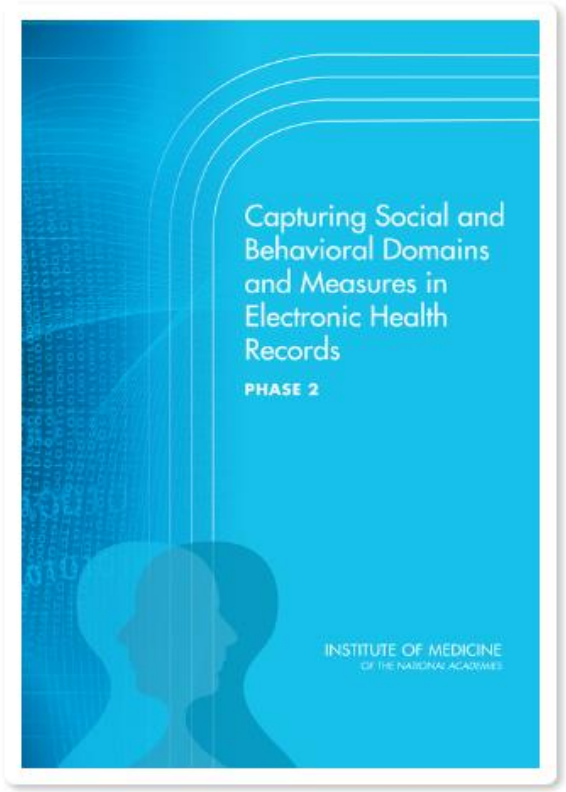
Summary of a population health plan delivered to an EHR



Complex event processing



Capturing Social and Behavioral Domains in Electronic Health Records (IOM)



Sociodemographic
- Sexual orientation
- Race/ethnicity
- Country of origin
- Education
- Employment
- Financial resource strain

Psychological
- Health literacy
- Stress
- Negative mood and affect
- Psychological assets

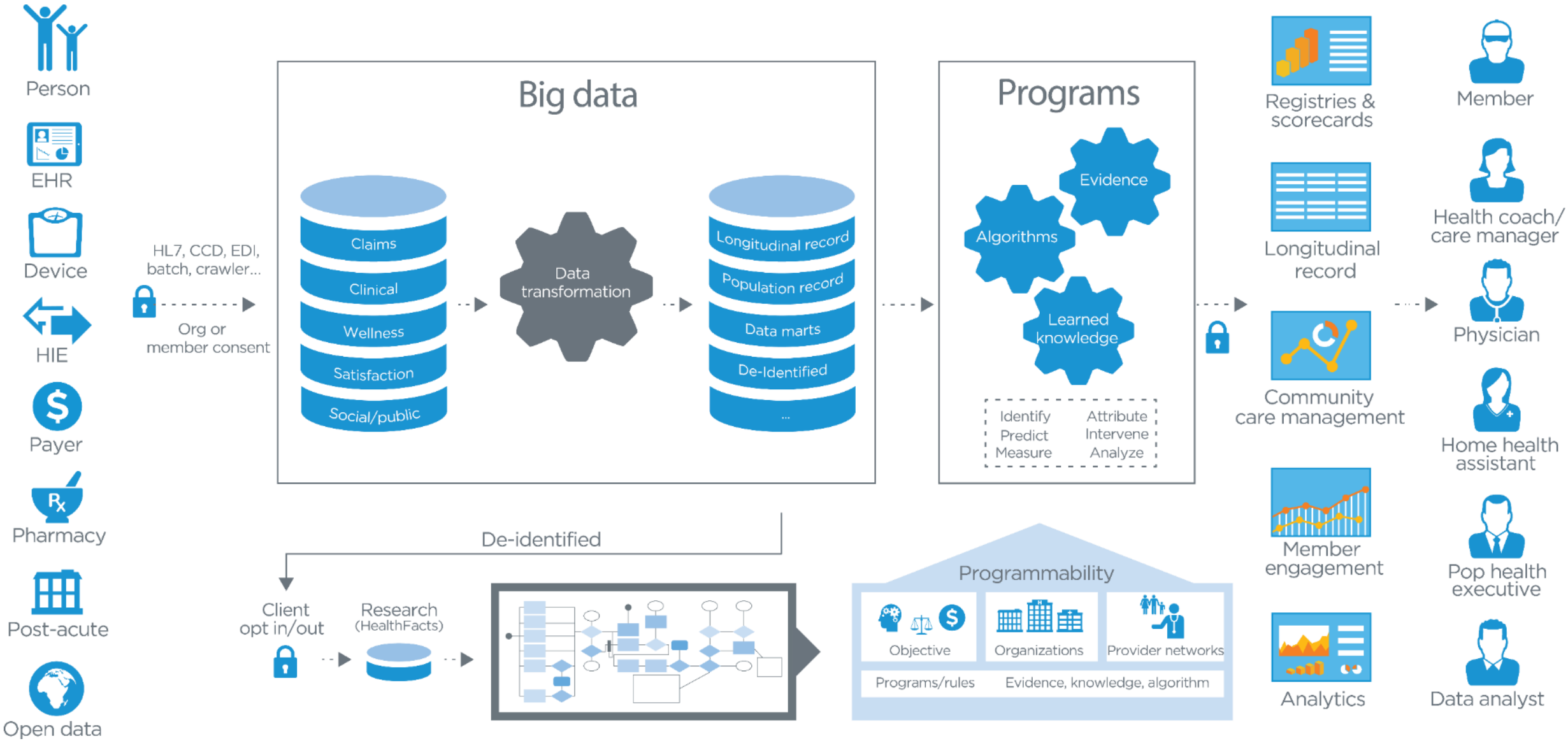
Behavioral
- Dietary patterns
- Physical activity
- Tobacco use and exposure
- Alcohol use

Individual level social relationships and living conditions
- Social connections
- Exposure to violence

Neighborhood and communities
- Neighborhood and community compositional characteristics

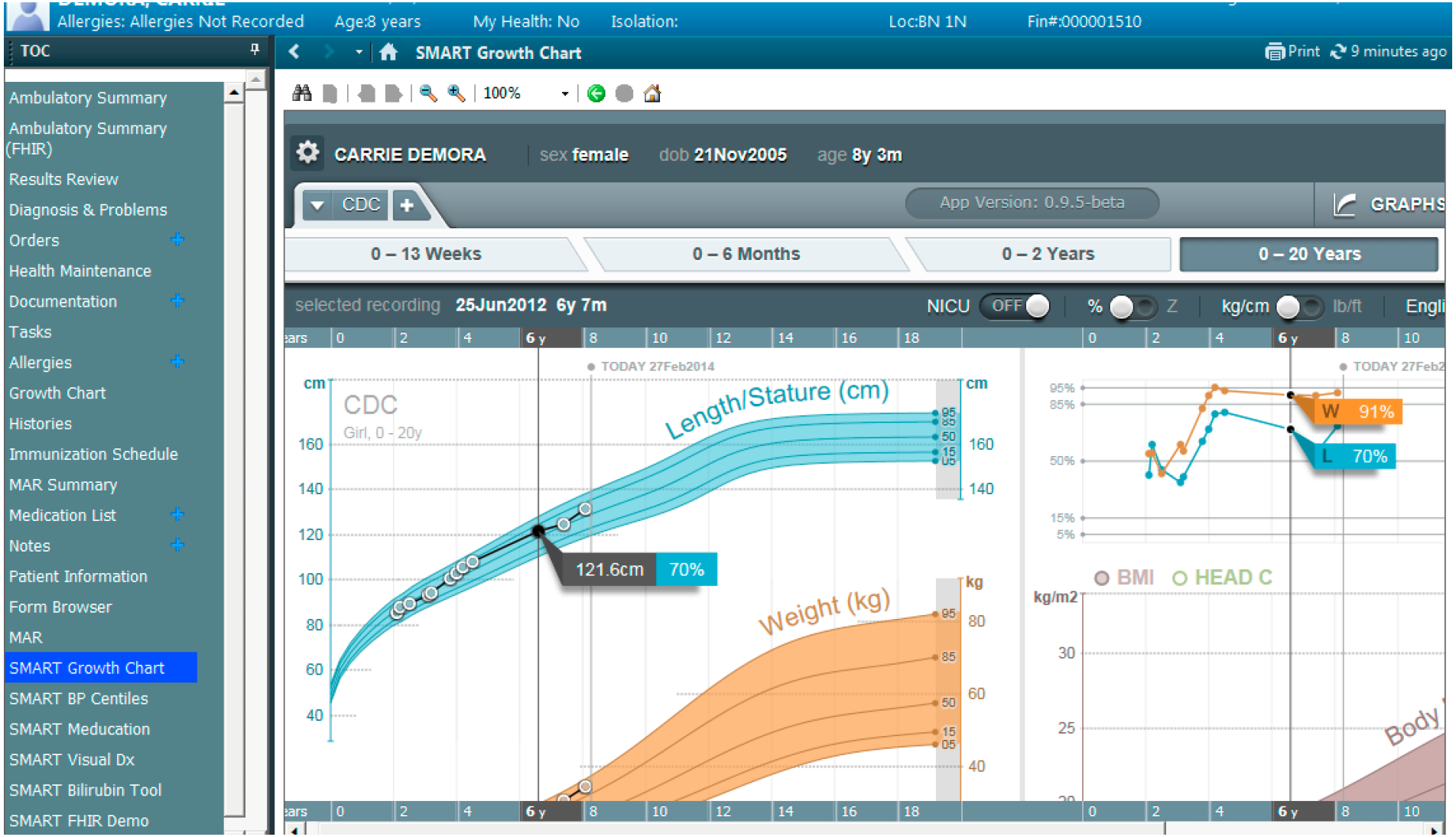
Evolution of the interoperability “stack”

The New Middle – Population Health



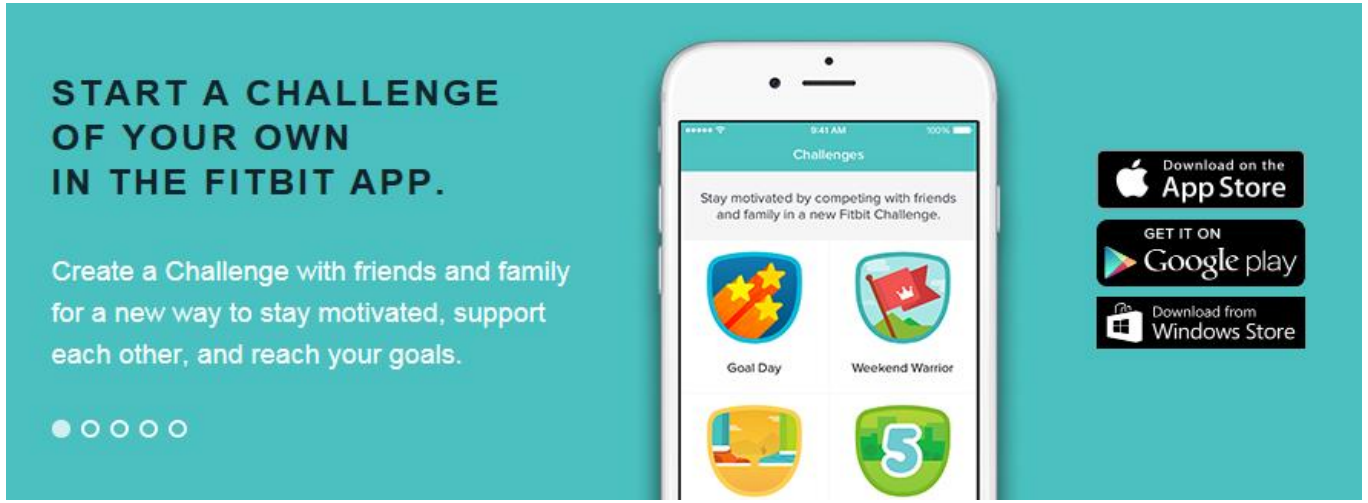
FHIR/SMART is early but potentially potent

Boston Childrens: SMART growth chart



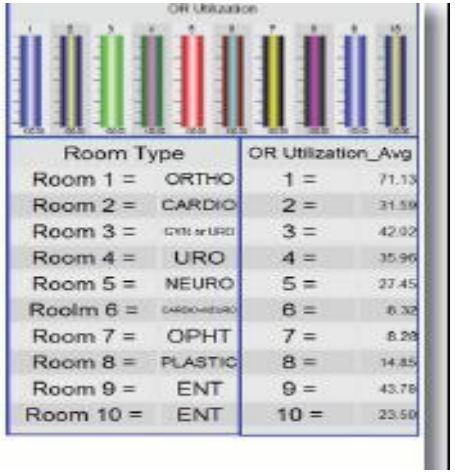
Categories of IoT Health Care Use Cases

- Monitoring and management of patient health status
  - Monitoring of physiological and health status with alerting of material condition change
  - Monitoring of performance of implanted and external patient devices
  - Feedback to guide/encourage desired health behaviors

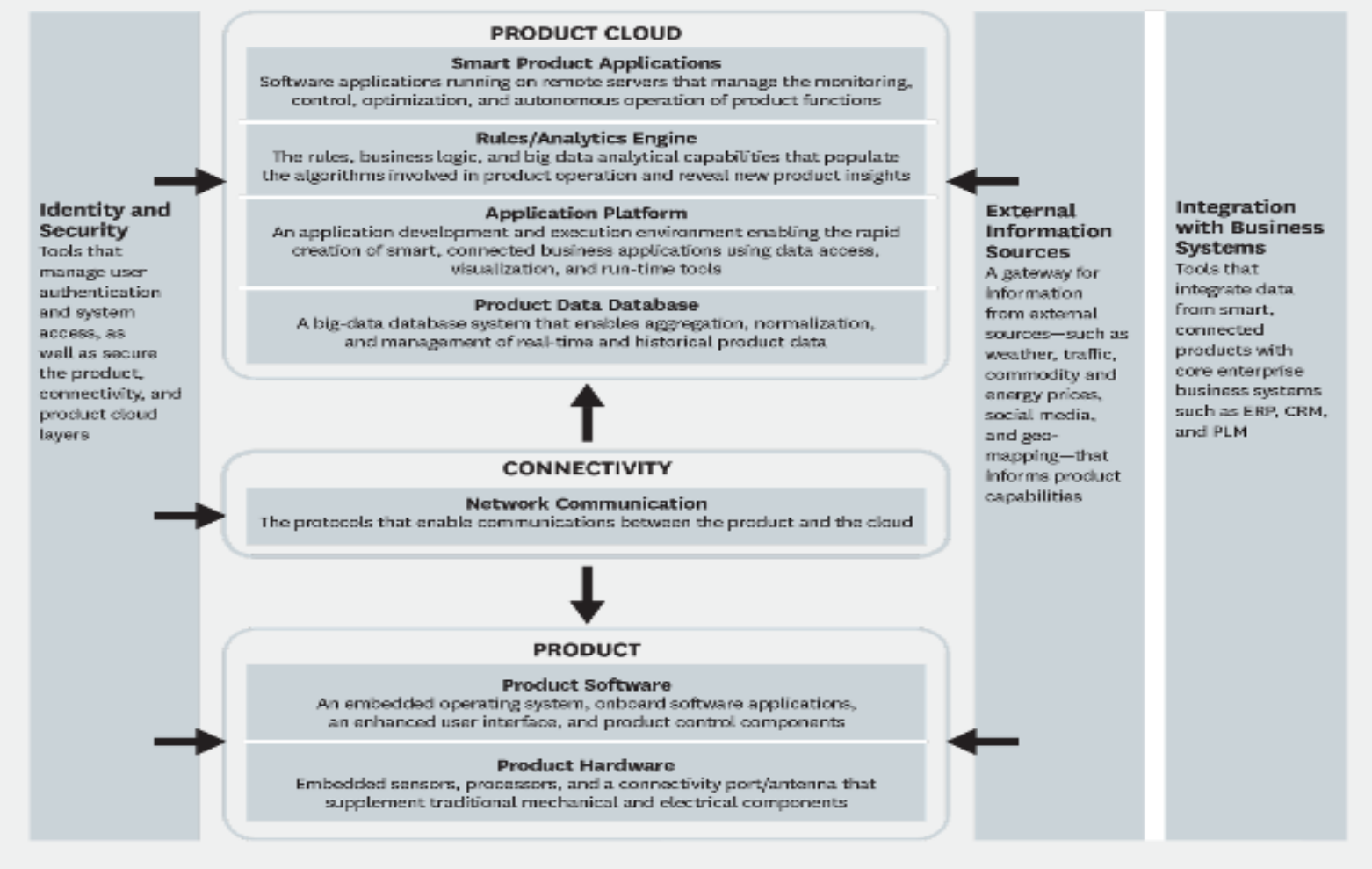


Categories of IoT Health Care Use Cases

- Process optimization
  - Management of inpatient throughput through coordination of patients, providers, equipment and rooms
  - Dynamic scheduling and locating of equipment based on utilization



The IoT Technology Stack



Porter, HBR, 2015

What does the future hold?

- Interoperability is quickly evolving from a model rooted on:
  - Exchange of clinical data
  - Using health information exchange technologies
- Interoperability is becoming a very complex, multi-faceted challenge/phenomena; molded by:
  - Federal government legislation and regulations
  - Provider consolidation and interoperability speciation
  - Industry collaborations
  - Expansion of the range of “data”
  - Evolution of the interoperability “stack”
- It is unclear where this will all go
- The primary levers are:
  - Government
  - Industry collaborations

Questions?