# ONC Update for NCVHS: Focus on the Learning Health System

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# A Learning Health System (LHS)

" … one in which progress in science, informatics, and care culture align to generate new knowledge as an ongoing, natural by-product of the care experience, and seamlessly refine and deliver best practices for continuous improvement in health and health care." (Institute of Medicine)

# A Consistent Federal Vision

- ## 2004 Strategic Framework
  - "Improve Population Health": one of four framework components, addresses public health, research, and quality

- ## 2008 Strategic Plan
  - "Population Health", as defined above: one of two goals and four of eight objectives

- ## 2011 Strategic Plan
  - "Learning Health System": explicitly one of five strategic objectives and represented substantially in other objectives
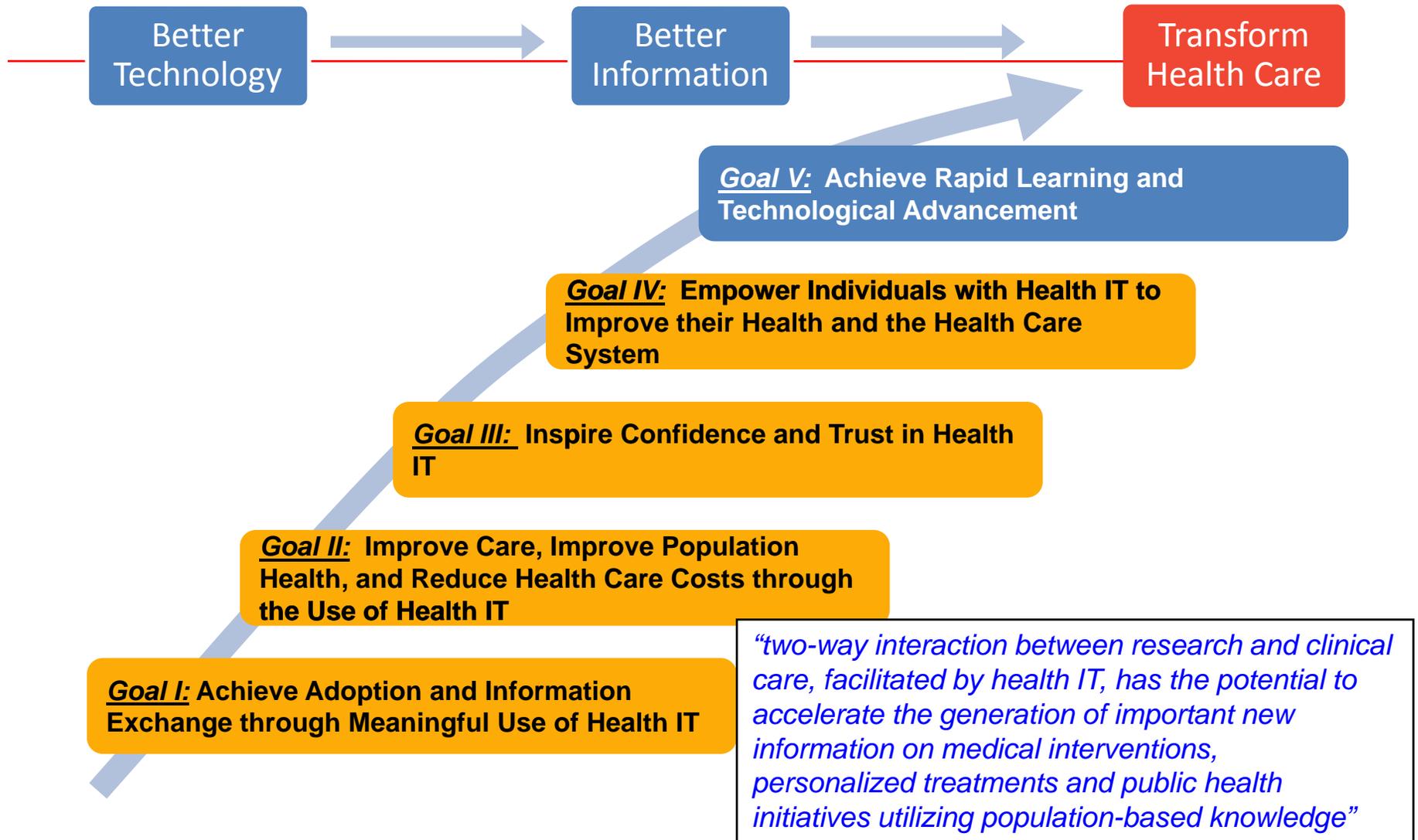
# Learning System Scenarios

*"17 years to 17 months, or maybe 17 weeks or even 17 hours…"*

- Nationwide post-market surveillance of a new drug quickly reveals that personalized dosage algorithms require modification.  A modified decision support rule is created and is implemented in EHR systems.

- During an epidemic, new cases reported directly from EHRs.  As the disease spreads into new areas, clinicians are alerted.

# LHS: A Pillar of the Federal Health IT Strategic Plan

Better Technology → Better Information → Transform Health Care

**Goal V:** Achieve Rapid Learning and Technological Advancement

**Goal IV:** Empower Individuals with Health IT to Improve their Health and the Health Care System

**Goal III:** Inspire Confidence and Trust in Health IT

**Goal II:** Improve Care, Improve Population Health, and Reduce Health Care Costs through the Use of Health IT

**Goal I:** Achieve Adoption and Information Exchange through Meaningful Use of Health IT

*"two-way interaction between research and clinical care, facilitated by health IT, has the potential to accelerate the generation of important new information on medical interventions, personalized treatments and public health initiatives utilizing population-based knowledge"*

# A Learning System for the U.S.

# The IOM "Digital Infrastructure" Report

**_Digital Infrastructure for the Learning Health System: The Foundation for Continuous Improvement in Health and Health Care_**
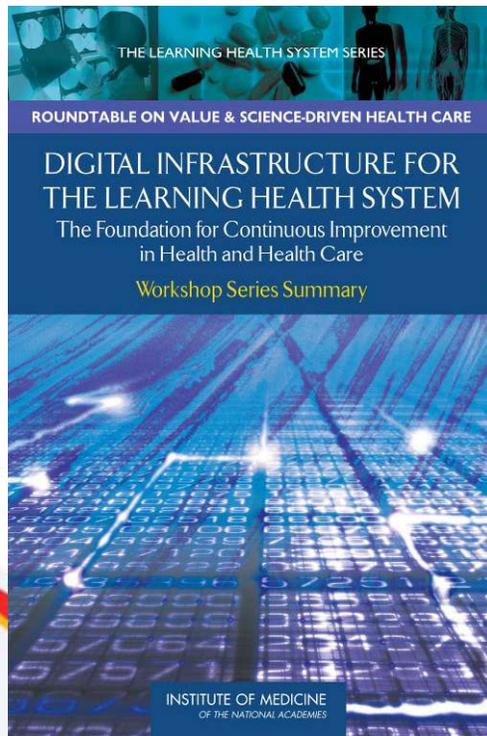
_"Health and health care are going digital. …Progress in computational science, information technology, and biomedical and health research methods have made it possible to foresee the emergence of a learning health system which enables both the seamless and efficient delivery of best care practices and the real-time generation and application of new knowledge."_

_(p. 1)_

_Available at: www.iom.edu/vsrt_

# Meaningful Use is Necessary but Not Sufficient*

- MU is a status achieved individually by eligible professionals and hospitals
- LHS is a system that includes these professionals and hospitals
- An LHS requires:
  - "Systemness": membership, organization, governance
  - Public trust and support through patient engagement
  - Data aggregation: real or virtual, very sophisticated form of exchange
  - Analysis: Data → Knowledge
  - Knowledge dissemination → Behavior change

*Friedman CP, Wong AK, Blumenthal D. Achieving a Nationwide Learning Health System. *Science Translational Medicine*: 2, 1-3, 2010.

# $MU + \Delta = LHS$

*What the LHS will inherit from MU:*

- Digital, computable health data
- Substantial standardization
- Health information exchange capability
- Governance of health information exchange
- Privacy and security policies

# The LHS Currently Envisioned

- A federation of some type
  - *Not* a centralized database
- Grounded in public trust and patient engagement
- Participatory governance
- "Just enough" standardization

# So the Grand Strategy Has Three Parts

$$MU + \triangle = LHS$$

*Simultaneously:*

1. Build toward national meaningful use
2. Build the "delta"
3. Do each in a way that anticipates the other

# Building the "Delta"

*Plans for 2011:*

- Federal LHS Working Group
  - Seven projects of four agencies
  - Exploring a hypothesis: Could they join to form an LHS using shared technology and policies?
- New IOM Study
  - What levels of data quality are needed for different types of learning?
- A lightweight approach to distributed query (virtual data aggregation)

# Thanks

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