Best Care at Lower Cost

The Path to Continuously Learning Health Care in America

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Computing Community Consortium

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Best care at lower cost

The path to continuous learning health care in America

- **Challenge context** – irrationality, quality, costs, complexity
- **Why now?** – costs, complexity, computing, CQI, culture, policy
- **The vision** – a continuously learning health system
- **The path** – digital infrastructure, care improvement tools, supportive policy
- **CCC leadership** – networks, tools, people, policy
- **IOM synergy** – leadership Roundtable, Innovation Collaborative projects

Imagine

These sectors operating like health care

- **Banking** – ATM transactions slowed by misplaced records
- **Home building** – carpenters, electricians, and plumbers all working independently and with different blueprints
- **Retail stores** – no product prices posted, and charges varying widely by method of payment
- **Auto manufacturing** – no warranties for defects or product line quality assessment
- **Airline travel** – pilots all designing their own pre-flight safety checks

Imagine

Health care operating with best sector practices

- **Records** immediately updated and available for use by patients.
- **Care delivered** proven reliable at the core and tailored at the margins.
- **Patient and family needs** and preferences a central part of the decision process.
- **Team members** all fully informed in real time about each other's activities.
- **Prices and costs transparent** to all participants.
- **Payment incentives** structured to reward outcomes and value, not volume.
- **Errors** promptly identified, reported, and corrected.
- **Continuous improvement** based on real-time practices and outcome monitoring.

Challenge context

- Quality
- Costs
- Complexity

Challenge context

- **Quality –** *persistent shortfalls*

Quality

- **Patient harm –** One-fifth to one-third of hospital patients harmed during their stay, largely preventable.
- **Recommended care –** Only about half of recommended preventive, acute, and chronic care actually delivered.
- **Outcome shortfalls –** If care quality matched highest statewide performance, there would have been 75,000 fewer deaths nationally.

Challenge context

- **Costs:** *unsustainable levels, waste*

Costs

Absolute, relative, wasted, opportunity

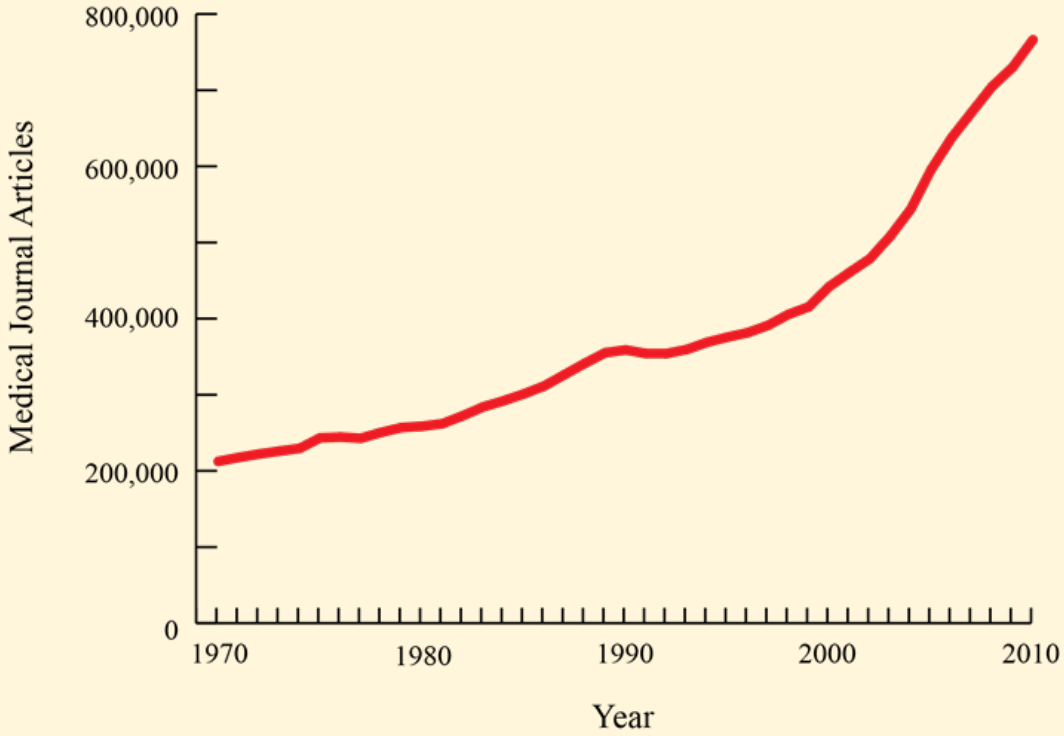
- **Absolute expenditures –** $2.6 trillion 18% GDP
- **Relative expenditures –** 76% increase health costs in past 10 years, overwhelming the 30% gain in personal income
- **Wasted expenditures –** $750 billion (2009)
- **Opportunity costs –** e.g. total waste could pay salaries of all first response personnel for 12 years – and fund a great deal of biomedical research.

Challenge context

- **Complexity:** *exponentially increasing*

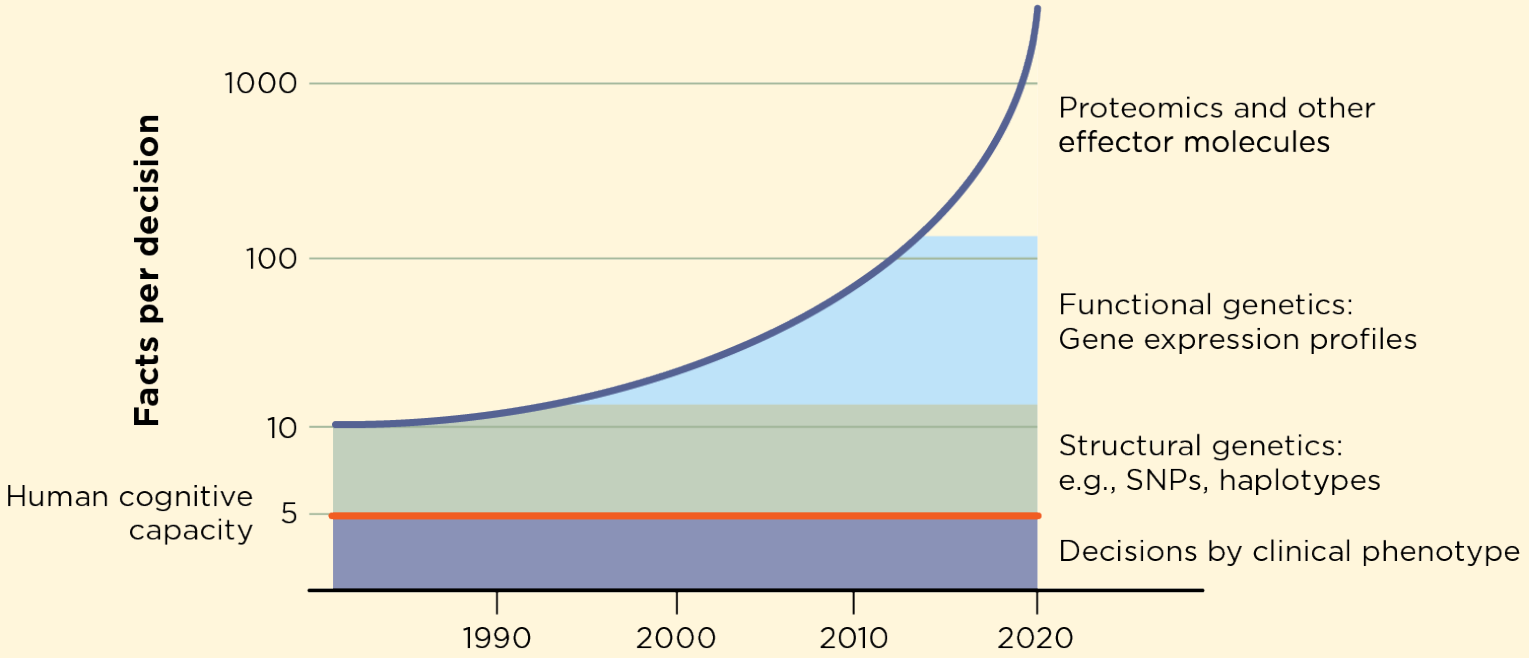
Complexity

Increasing information



Complexity

Diagnostic factors in play per person



Stead, W. (2007)

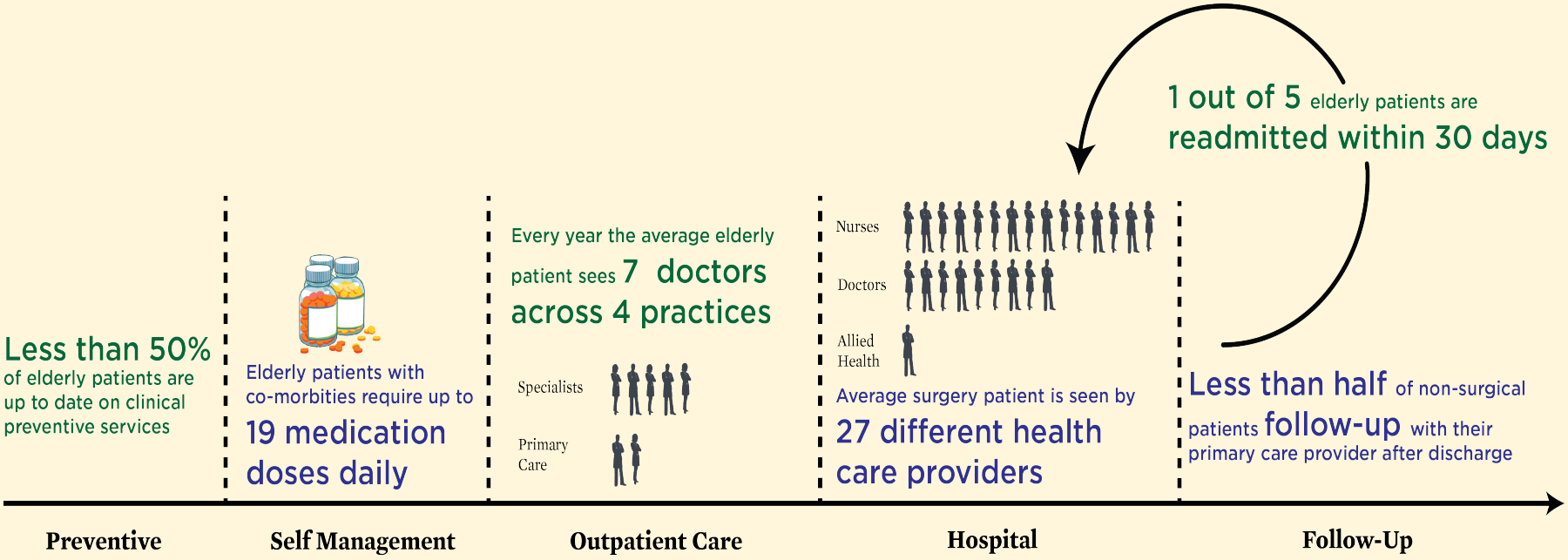
Complexity

Treatment factors in play per person

- **More conditions –** e.g. 79 year old patient with 19 meds per day for osteoporosis, diabetes, hypertension, and COPD
- **More clinicians –** e.g. over 200 other doctors are also providing treatment to the Medicare patients of an average primary care doctor
- **More choices –** e.g. for prostate cancer: watchful waiting, laparoscopic or robotic assisted surgery, brachytherapy, IMRT, proton beam therapy, cryotherapy, androgen deprivation therapy
- **More activities –** e.g. ICU clinicians with 180 activities per person, per day

An all-too-typical experience

Representative timeline of a patient's experiences in the U.S. health care system



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Why now?

New Tools

- **Computing**
  - **Better connectivity** to information and among participants
  - **Stronger processing** capacity for new knowledge
- **System performance improvement tools**
- **Patient-clinician culture change strategies in play**
- **Policy levers** for incentives, transparency, accountability, engagement

The vision

A continuously learning health care system

- **Science and informatics**
  - Real-time access to knowledge
  - Digital capture of the care experience
- **Patient-clinician partnerships**
  - Engaged, empowered patients
- **Incentives**
  - Incentives aligned for value
  - Full transparency
- **Culture**
  - Leadership-instilled culture of learning
  - Supportive system competencies

The vision

Moving from the linear

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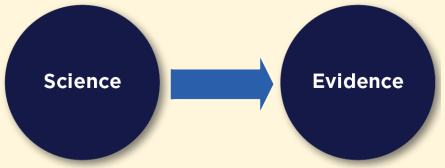
The vision

Moving from the linear



The vision

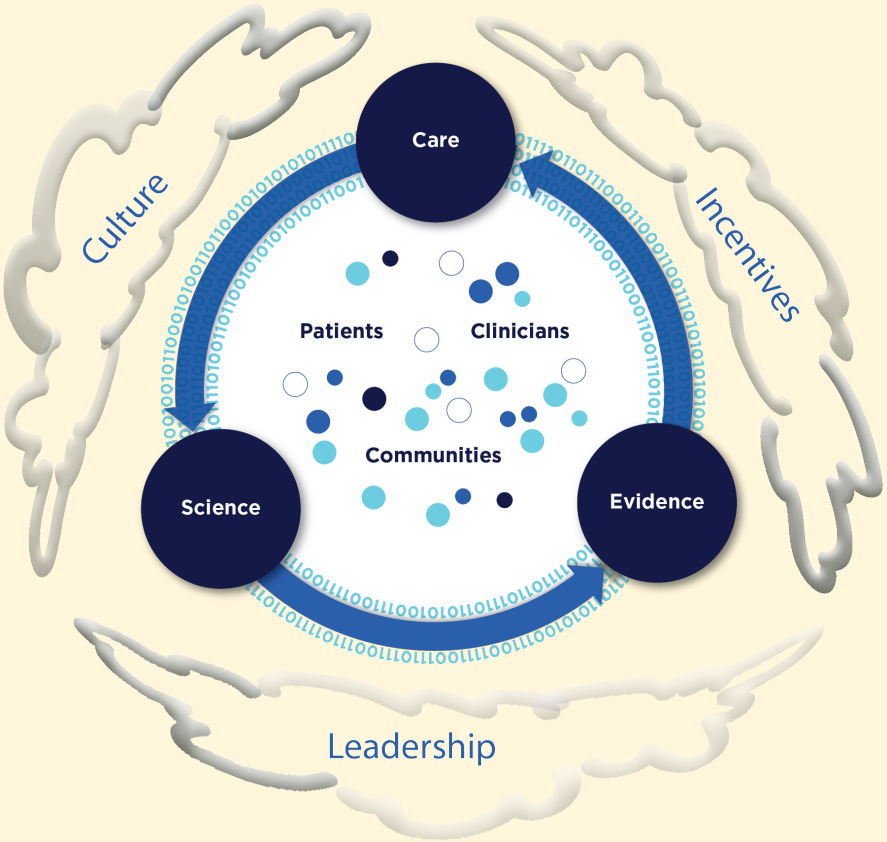
Moving from the linear

The vision

From missed opportunities, waste, and harm

The vision

To continuous learning, best care, lower cost



The path

- Foundational elements
- Care improvement targets
- Supportive policy environment

The path

Foundational elements

- **The digital infrastructure –** Improve the capacity to capture clinical, delivery process, and financial data for better care, system improvement, and creating new knowledge.

- **The data utility –** Streamline and revise research regulations to improve care, promote the capture of clinical data, and generate knowledge.

The path

Care improvement targets

- **Clinical decision support –** Accelerate integration of the best clinical knowledge into care decisions.
- **Patient-centered care –** Involve patients and families in decisions regarding health and health care, tailored to fit individual preference.
- **Community links –** Promote community-clinical partnerships and services aimed at managing and improving health at the community level.
- **Care continuity –** Improve coordination and communication within and across organizations.
- **Optimized operations –** Continuously improve health care operations to reduce waste, streamline care delivery, and focus on activities that improve patient health.

The path

Supportive policy environment

- **Financial incentives –** Structure payment to reward continuous learning and improvement in the provision of better care at lower cost.
- **Performance transparency –** Increase transparency on health system performance.
- **Broad leadership –** Expand commitment to the goals of a continuously learning health care system.

CCC leadership

- Networks
- Tools
- People
- Policy

CCC leadership

Bringing transformational research to practice

- **Networks –** e.g. technical assistance in expanding distributed research networks and innovative research methods; development of virtual learning community for knowledge generation in ACO's.

- **Tools –** e.g. development of "big data" mining tools and strategies through industry-HCO-payer-public partnerships (NIH, NSF, DARPA, Hughes, Google, Microsoft, IBM, Amazon, insurers, etc); models for computing-based care coordination.

- **People –** e.g. democratization of data-driven medicine through mobile computing and construct of user-friendly data access/interpretation Apps; models for clinic-community approaches for identification and treatment of high-risk resource-intensive patients.

- **Policy –** e.g. data quality/standards/interoperability strategies and testing; citizen-level support strategies for reducing barriers to building a cloud-based clinical data research trust; fostering "information donor" initiative; strategies to reward provider organizations generating reliable knowledge from routine clinical care; prominent emphasis on continuous learning as centerpiece of evolving clinical research paradigm

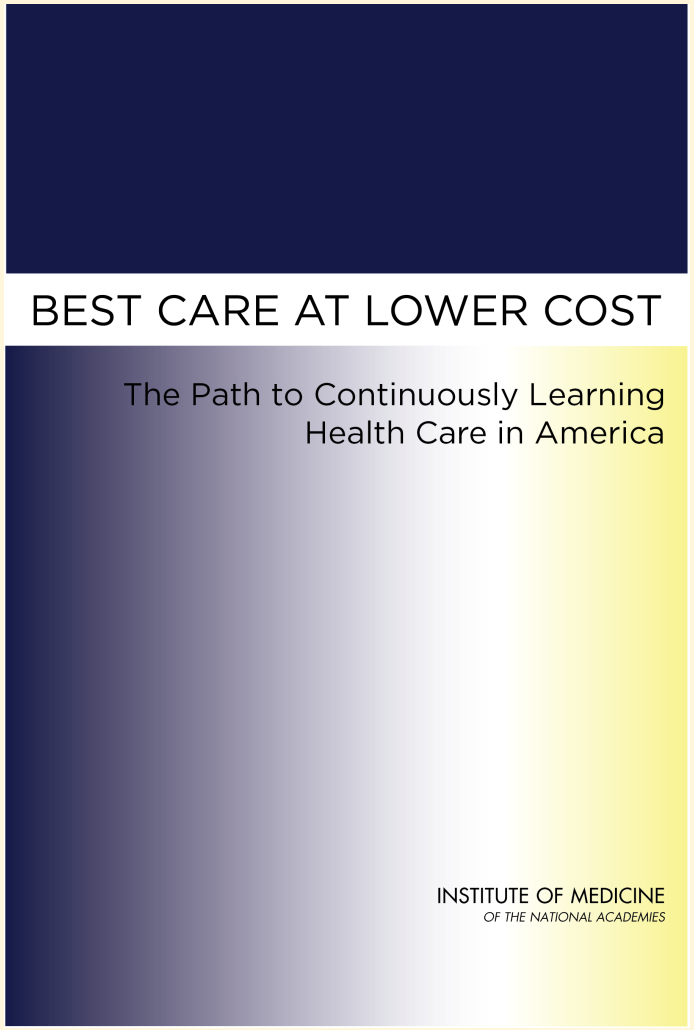
IOM synergy

IOM Roundtable on Value & Science-Driven Health Care

- **Health professionals –** Best Practices Innovation Collaborative
- **Evidence-messaging –** Evidence Communication Innovation Collaborative
- **Digital infrastructure –** Digital Learning Collaborative
- **Clinical research –** Clinical Effectiveness Research Innovation Collaborative
- **Value enhancement –** Value Incentives Learning Collaborative
- **System optimization –** Systems Engineering for Health Innovation Collaborative

Learn more at…

iom.edu/bestcare



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