



Infrastructure Independence: Transforming Health Care Delivery

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West Wireless Health Institute

- An independent, nonprofit medical research organization launched in March 2009, with \$100 million in funding to date from the Gary and Mary West Foundation
- Primary mission:
 - Lower health care costs



WWHI Core Functions



Innovate

Commit resources to develop meaningful innovation in health care technology, solutions and business models

Validate

Champion the clinical and economic validation of specific technologies and solutions

Advocate

Work to shape the external environment to accelerate the adoption of novel medical technology like wireless health solutions

Invest

Evaluation of internal and external opportunities to accelerate and create innovations in health care

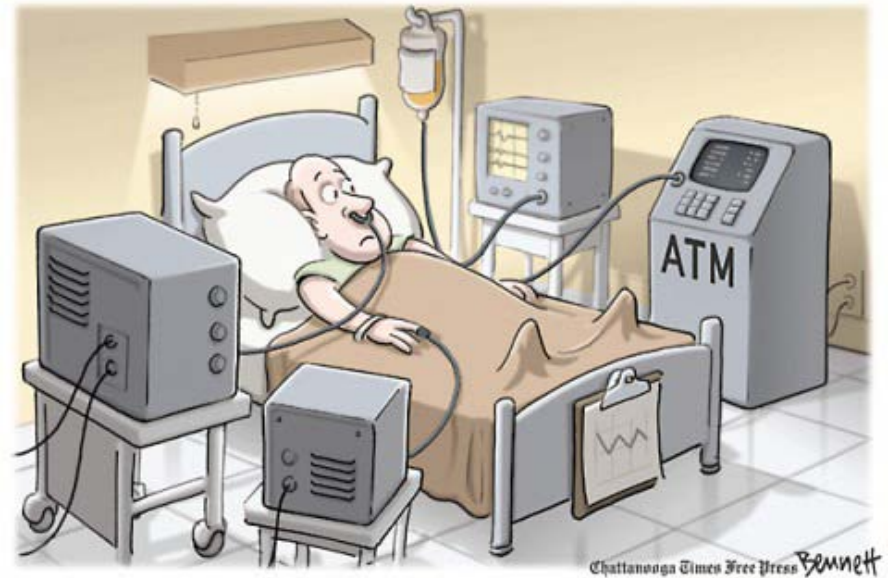
Commercialize

Create the capacity to move products and solutions through the initial commercialization process

State of Health Care Today

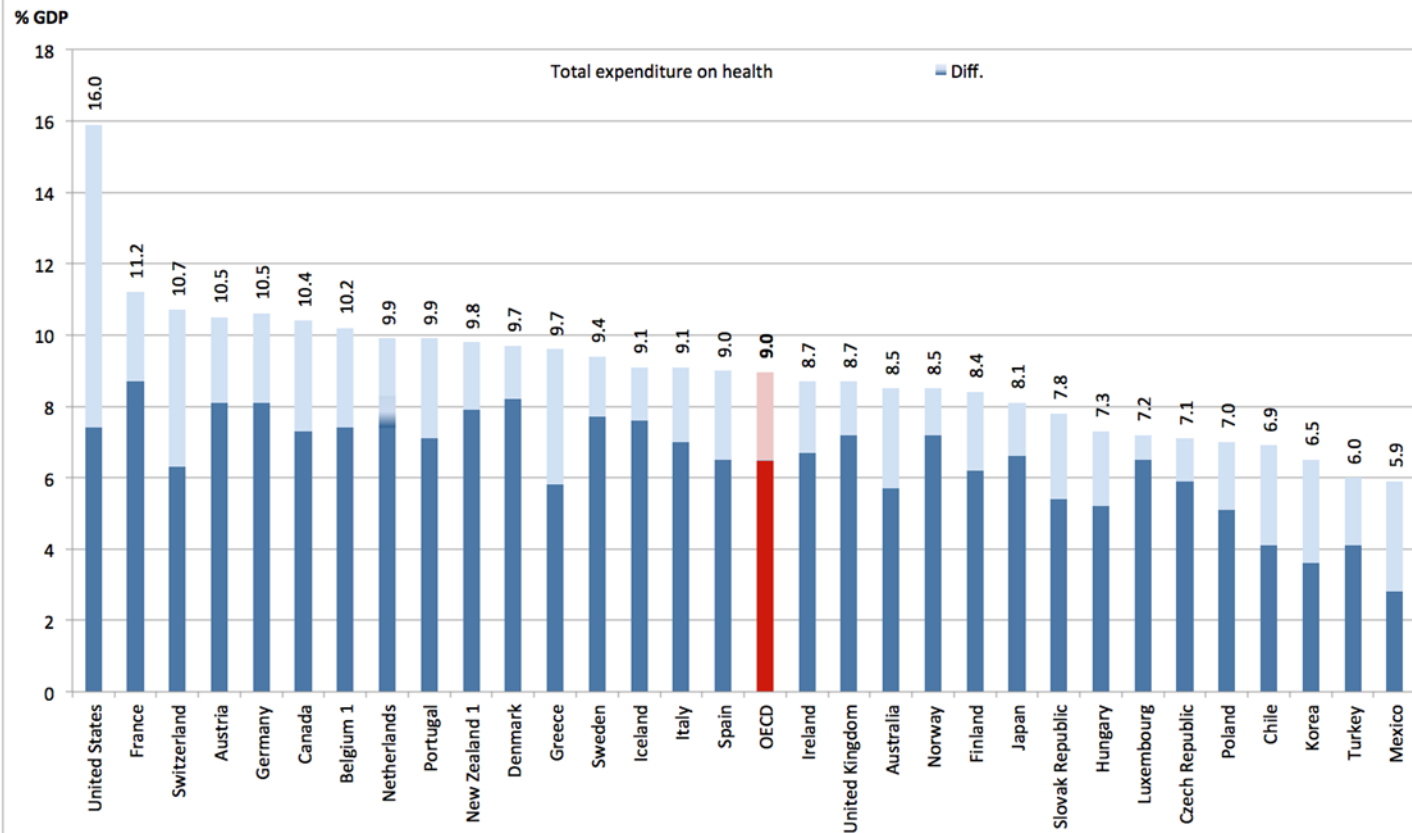
Seemingly inexorable forces:

- Rising costs
- Demographic challenges
- Shortage of doctors



U.S. health care spending is extraordinary

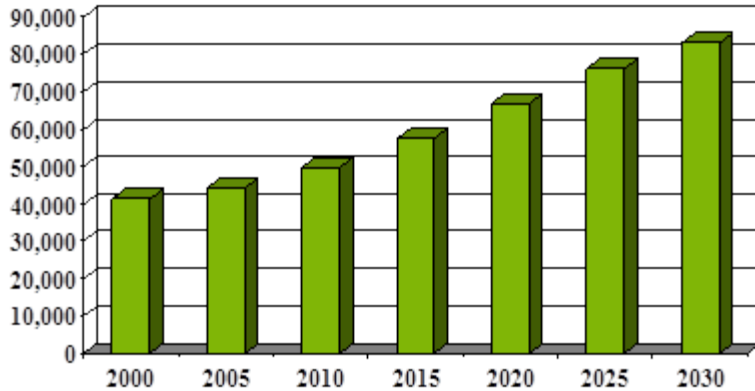
Figure 2. Health expenditure as a share of GDP, 2008 (or latest year available)



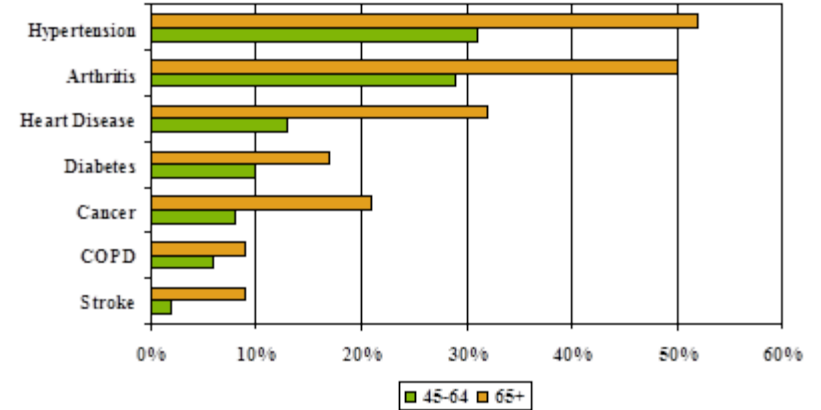
1. Current expenditure. Source: OECD Health Data 2010.

Aging demographics drive healthcare resource use and costs

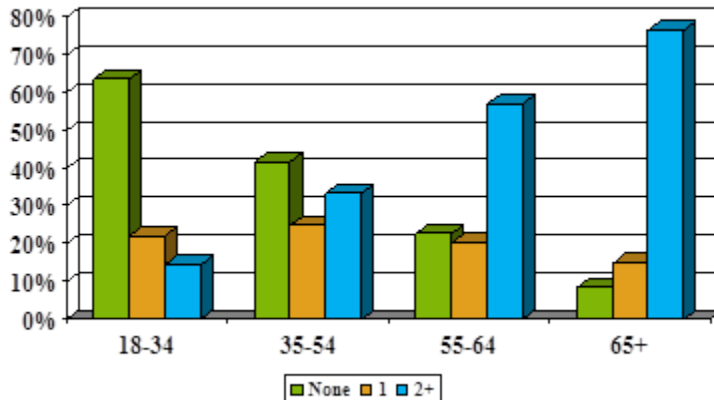
Aging Demographics: 62+



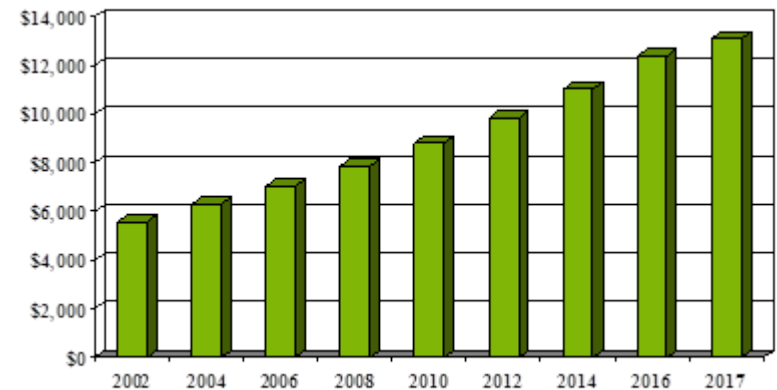
Disease Prevalence by Age



Co-morbidities by Age



Per Capita Healthcare Spending

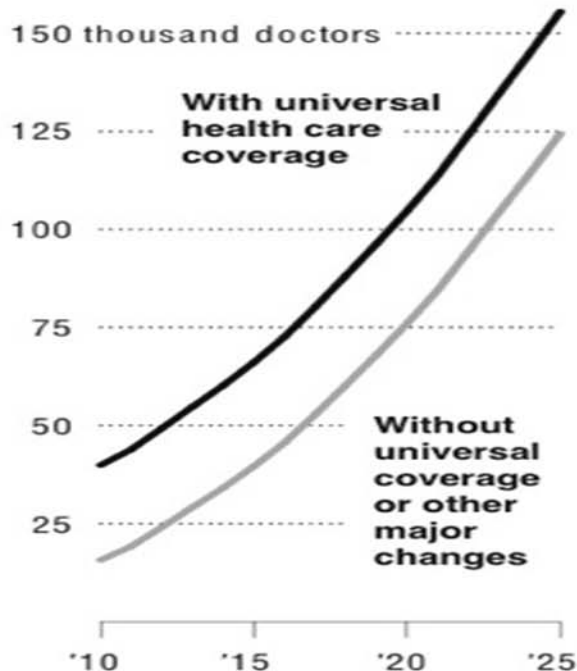


Fewer docs and more demand is unsustainable



Physicians

Projected shortfall in number of doctors needed

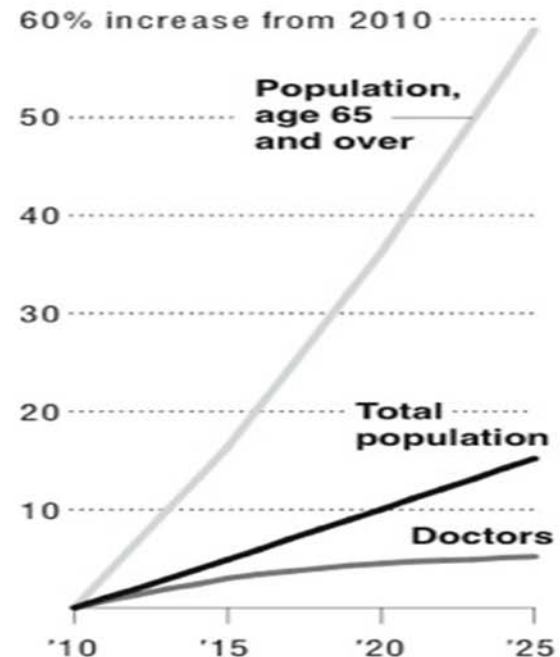


Source: American Association of Medical Colleges



Demand for Care

Projected growth in population vs. doctors



THE NEW YORK TIMES

Additional Drivers for Change

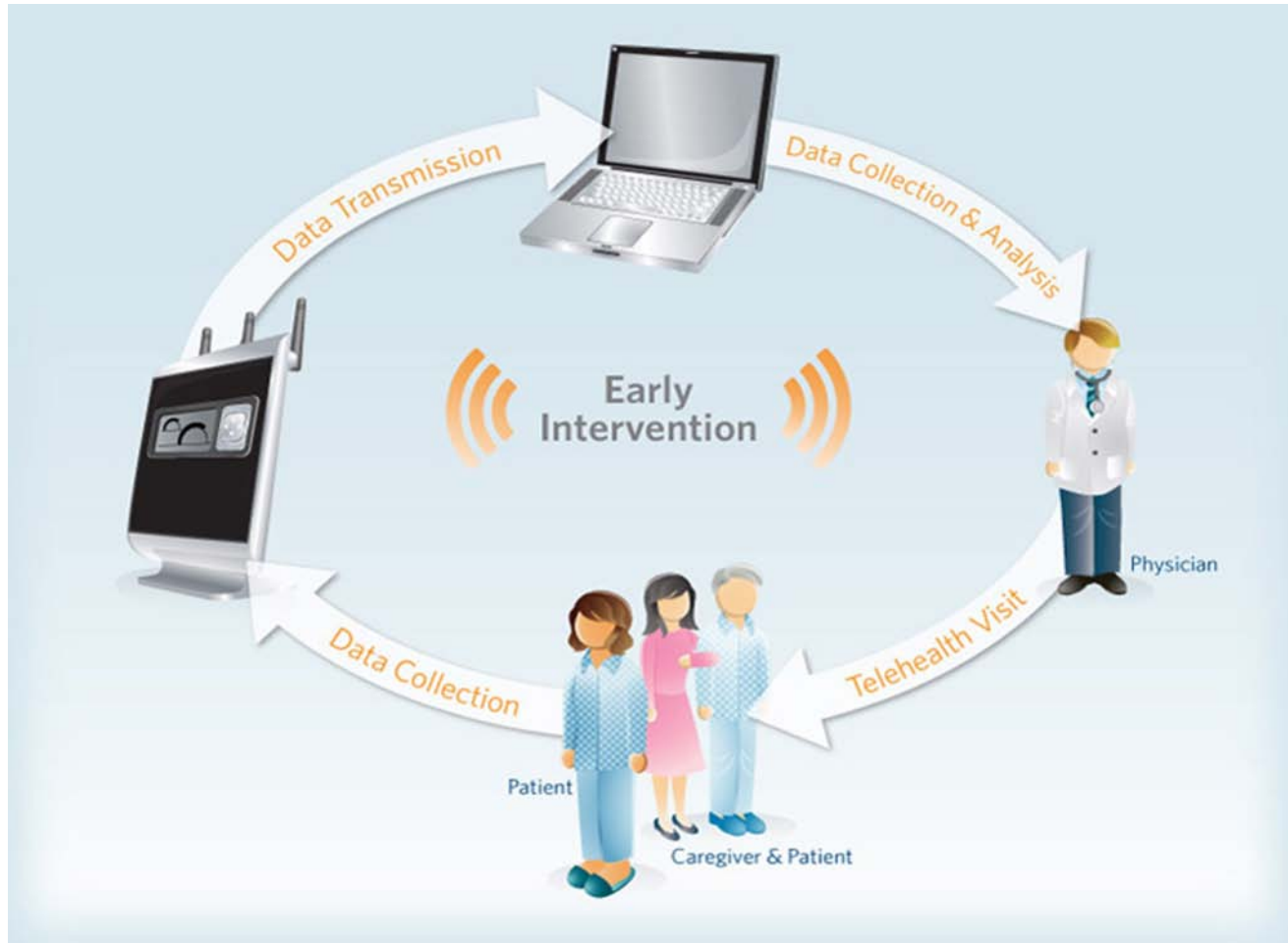
Payment Reform

- Aligned incentives v. Fee for Service
- Shift from volume to value in health care delivery
 - ✓ Accountable Care Organizations
 - ✓ Bundled Payments
 - ✓ Medical Home
 - ✓ Hospital readmission rules

Health care innovation

- Enabled by convergence of pervasive technologies

Wireless Health



Convergence Pervasive Technologies

wireless connectivity

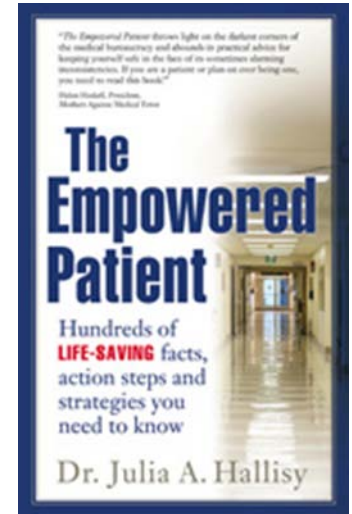


ubiquitous sensing



cloud computing

social networks



empowered patients

Pervasive technology enables coordinated care

Remote monitoring for chronic disease management

- ✓ Care not limited to doc office / clinic / ER

At time intervals and circumstances dictated by your condition

- ✓ Not just when you can get an appointment or get sick

Expert time & talent shifts to iterative outpatient adjustments

- ✓ Care on an ongoing basis v. during “routine” office visits

Freeing health care from hospitals and doctors offices

- ✓ Resulting in infrastructure independence

And leads to....

Infrastructure Independent Health Care

“The right care, at the right time, where you are”

<i>Current Model</i>	<i>Infrastructure Independent Model</i>
Low frequency visits	High touch
Acute-care focused	Right treatment
Appointment driven	When patients need it
Location centric	Where patients are
High cost	Low cost

Reasons for Optimism

- VHA – Care Coordination Telehealth Study
 - ✓ 19% reduction in hospitalizations
 - ✓ 25% reduction in bed-days
- Cochrane Review
 - ✓ 25% reduction in number of patients hospitalized with worsening heart failure
- NEHI
 - ✓ ~50-60% reduction in hospital readmissions – estimated cost savings of \$6.4B
- Meridian Health (NJ)
 - ✓ Readmission rates fell from 14.9% to 4.8%

Barriers to Overcome

Business Model Uncertainty:

- Must solve reimbursement question or implement different model
- Fee for service a challenge
- Venture funding

Regulatory:

- What is regulatory pathway?

Outstanding Legal Concerns:

- Privacy
- Liability
- Practicing medicine across state lines

Entrenched Health Care Establishment:

- Shift from hospital as the center

