ReThink Health

ReSearch ◦ ReConnect ◦ ReDesign

Modeling Regional Health Reform Using the ReThink Health Dynamics Model

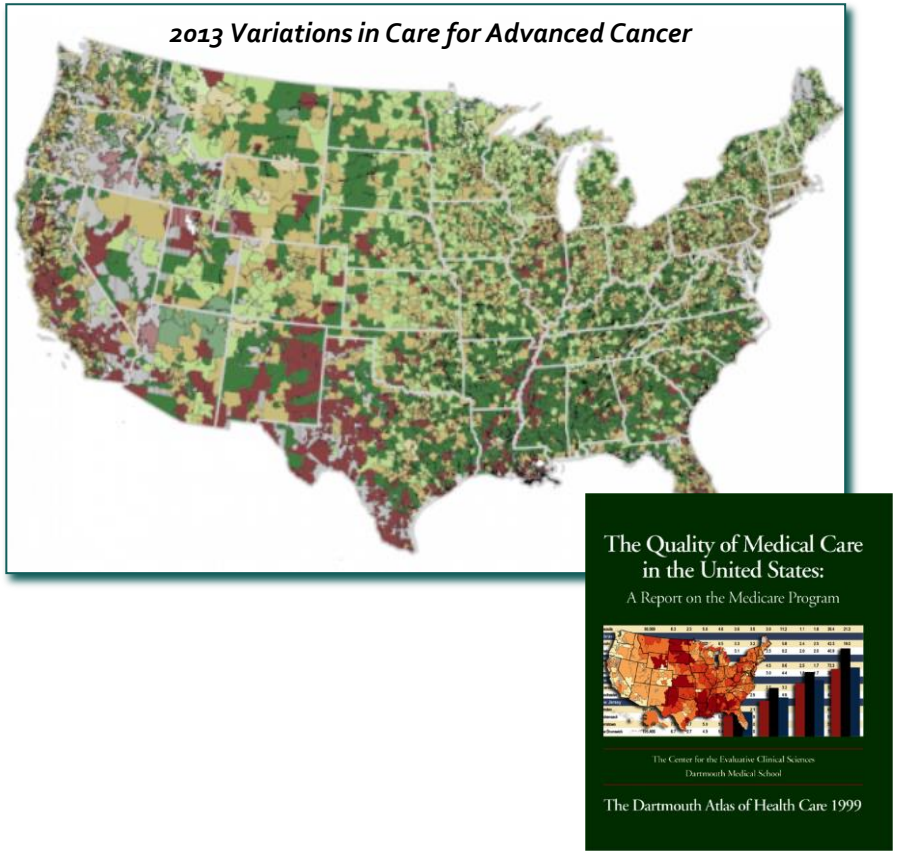
Bobby Milstein
Director, ReThink Health

Institute of Medicine
Roundtable on Population Health Improvement
Washington, DC
April 9, 2015

Regional Differences

Variations in Health and Risks
The County Health Rankings

Variations in Practice and Spending
The Dartmouth Atlas of Health Care



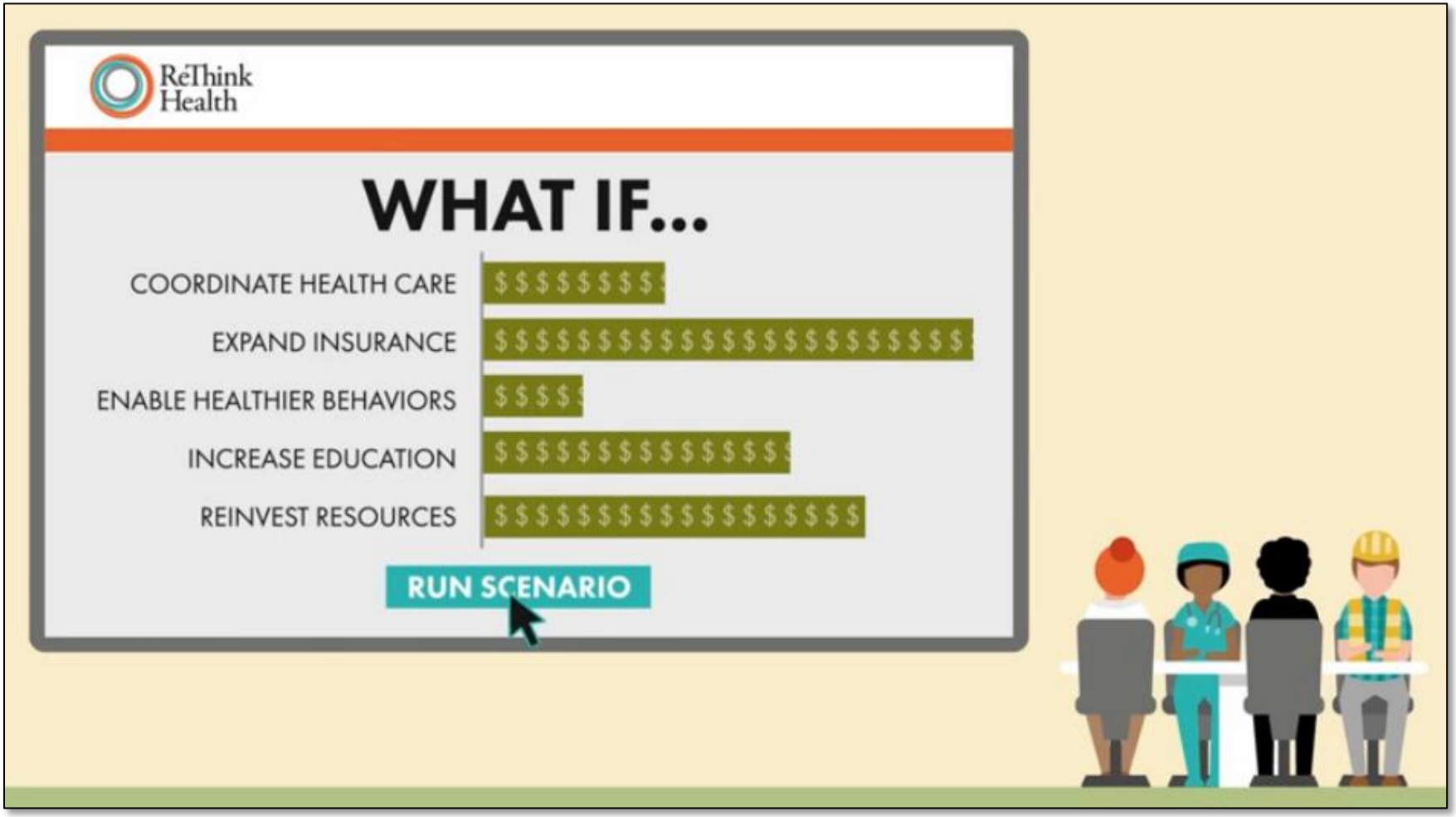
Guiding Question

What are the likely health and economic consequences of local health reform strategies under realistic, regional conditions?

Accounting for local trends related to:

- Insurance expansion
- Demography, aging, and inequity
- Health status, risks, and disease progression
- Quality, utilization, and cost of care
- Demand-supply for health care resources
- Economic recession and recovery
- Provider payment
- Program financing

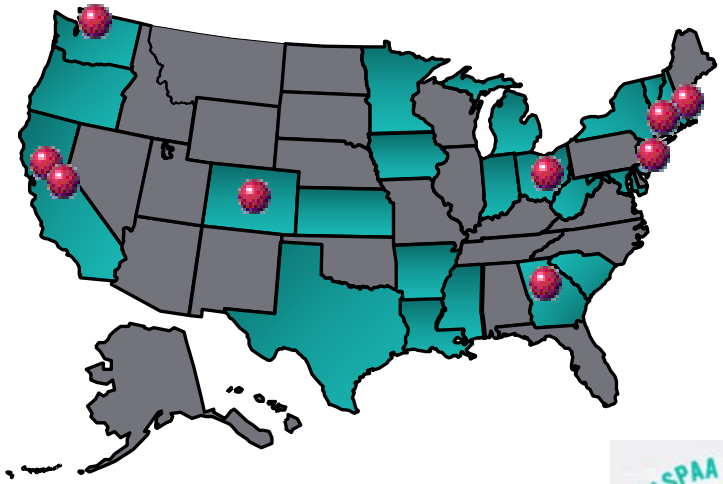
ReThink Health Dynamics



Watch an overview video at: http://tiny.cc/RTH-Model-Video

Learning with Innovators in Context

Anytown, USA (300k, 50k)



Regional Projects (2010-2015)

Regional Models (N=9)

Users

- 9 Local Configurations
- ~65 Strategy Labs
- ~2,500 Leaders
- ~15 Universities

NASPAA Student Simulation Competition

Dartmouth — Vox Clamantis in Deserto — 1769

MIT Massachusetts Institute of Technology

Columbia University in the City of New York

UAlbany State University of New York

Penn State — 1855

The University of Alabama

MUSC Medical University of South Carolina

Vanderbilt University

University of Virginia

ASU Arizona State University

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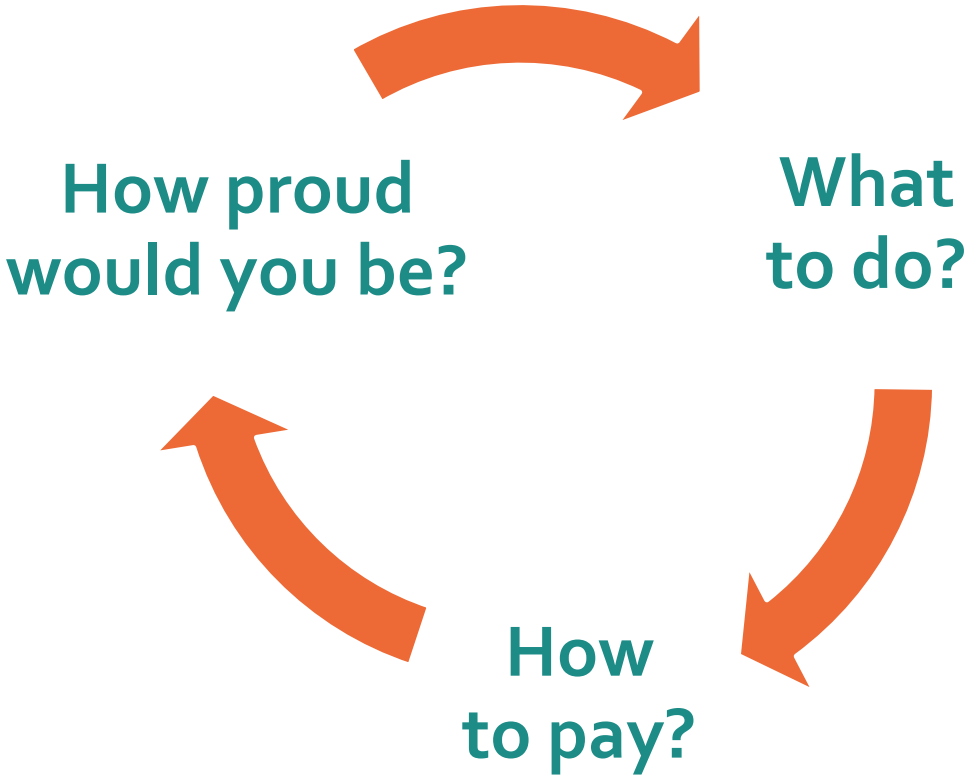
System Stewardship

How to Transform the Health System in Your Region?

Challenge: **Craft an effective strategy to improve performance of the regional health system, *and sustain those gains over time*.**



Initiative Options

RISK	Healthier behaviors Environmental hazards	Crime	Pathways to advantage (family; student)
CARE	Preventive/chronic care Mental illness care	Self care	Hospital infections
CAPACITY	PCP efficiency	Recruit PCPs (general; FQHC)	Hospital efficiency
COST	Pre-visit consult Medical home	Coordinate care Malpractice	Post-discharge care Hospice
TRENDS	Uninsurance Local economy	Primary care slots Hospital occupancy	Inflation rate
FUNDING	Innovation fund	Reinvest savings	Contingent global payment

* Definitions are available at:
http://www.rethinkhealth.org/wp-content/uploads/2015/02/Interventions.pdf

Illustrative Scenarios

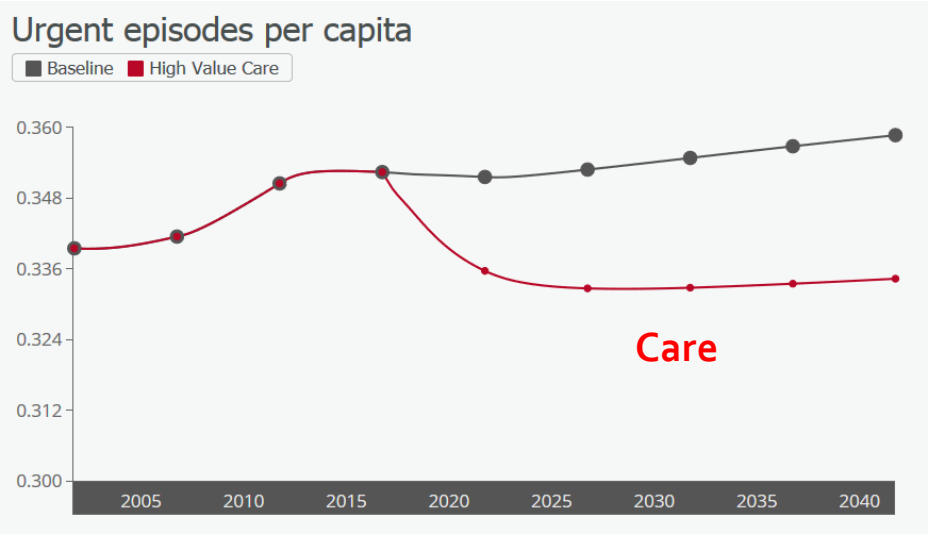
In Anytown, USA (based on national data at 1:1,000 scale)

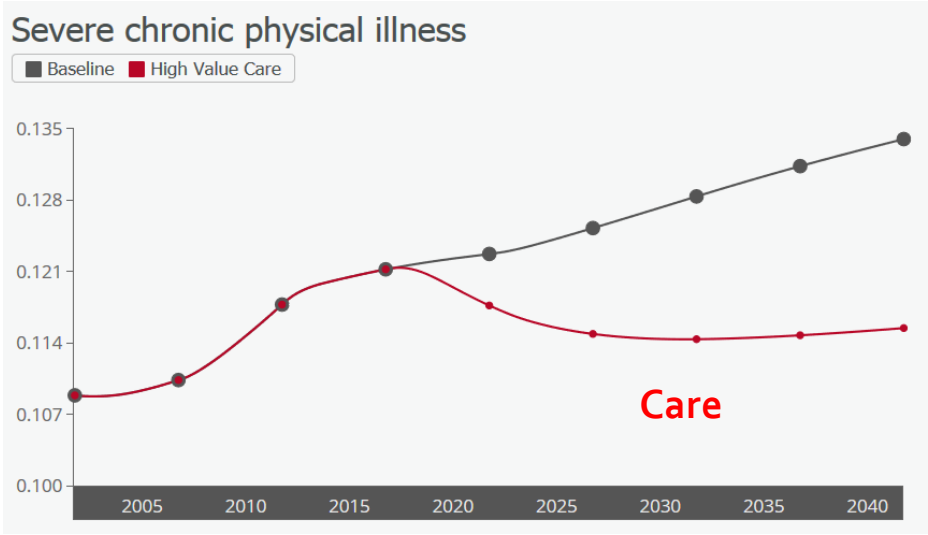
What to Do?	How to Pay?
Investments	**Financing**
• **High-Value Preventive & Chronic Care** • **Care + Healthier Behaviors & Environments**	• **1% Innovation fund** ($24M x 5 yrs = $120M) • **Gain sharing agreements** (50/50 split with insurers) • **Pay for value** (per capita payment)

* Definitions and assumptions about effect size, cost, and time delay are available at: http://www.rethinkhealth.org/wp-content/uploads/2015/02/Interventions.pdf

Some Insights: Downstream Investments

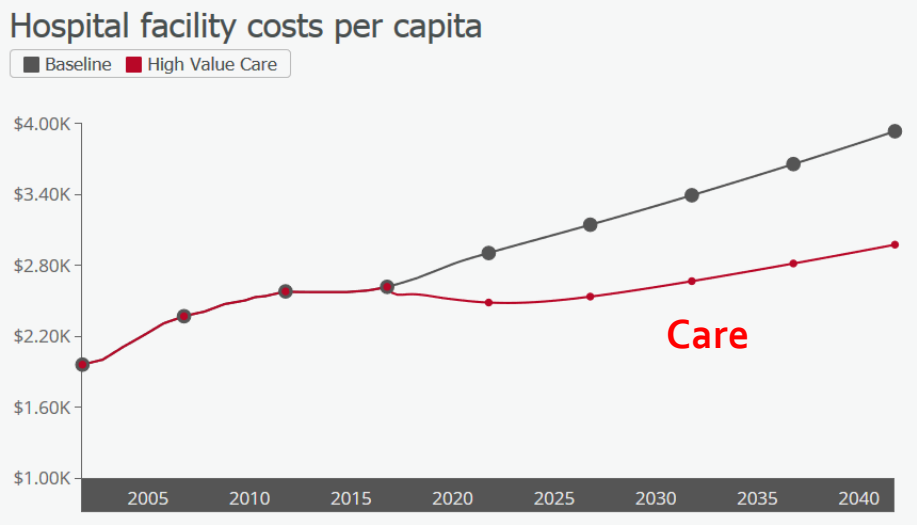
- **Can deliver relatively fast, focused impact**

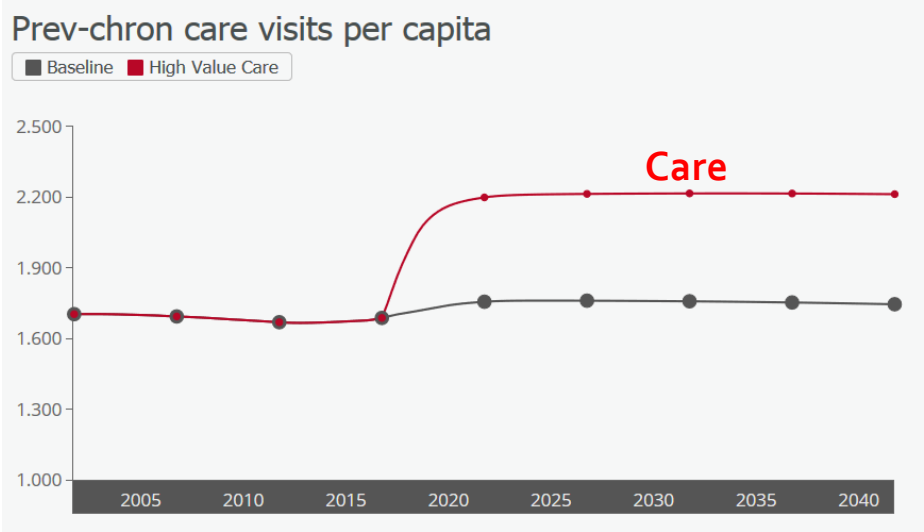




Some Insights: Downstream Investments

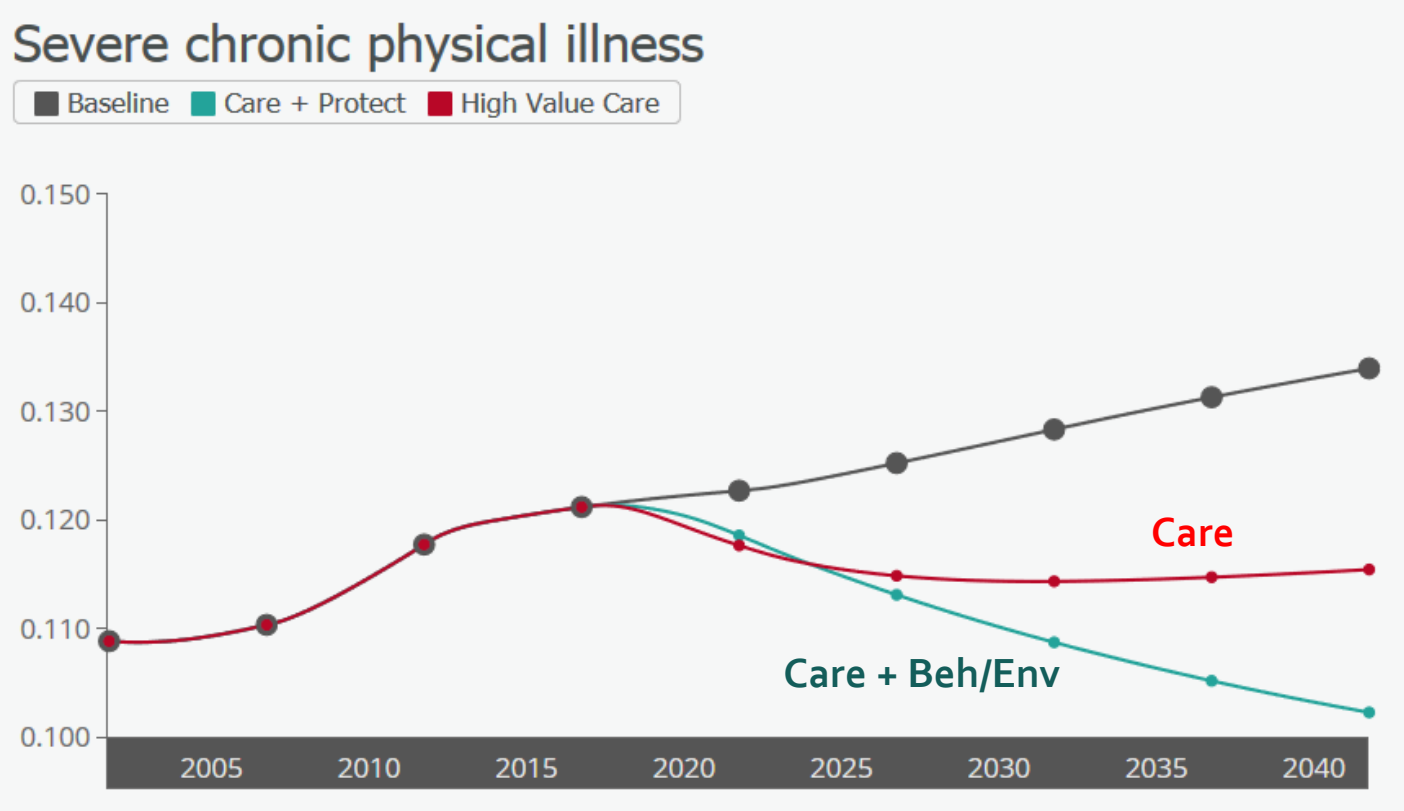
- Tend to plateau and have mixed effects on cost and inequity





Some Insights: Balanced Investments

- Could unlock much greater potential for health and resilience
- The upstream elements yield broad progress on health, cost, equity, and productivity. The effects can be large, but accumulate gradually.



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Some Insights: Balanced Investments

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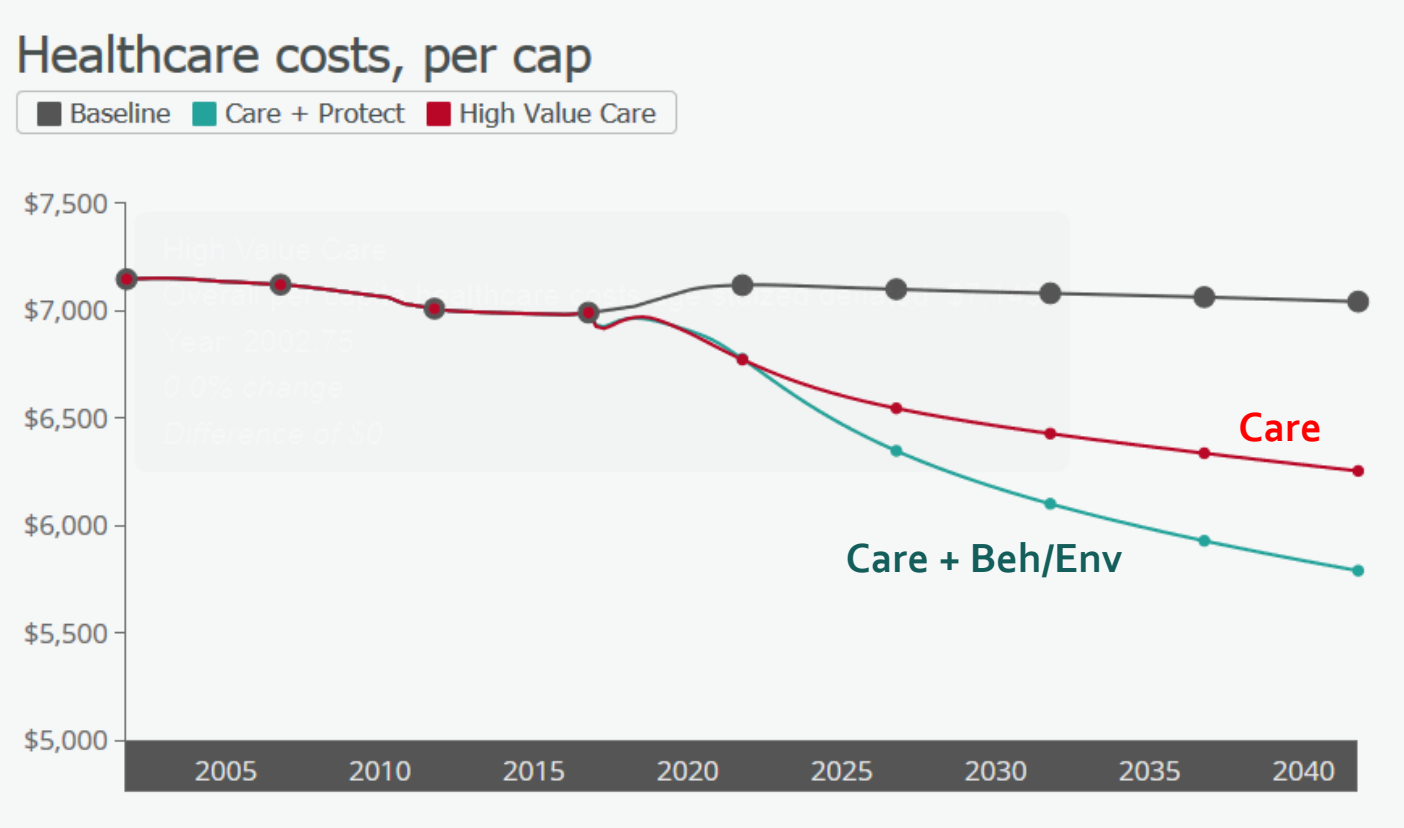
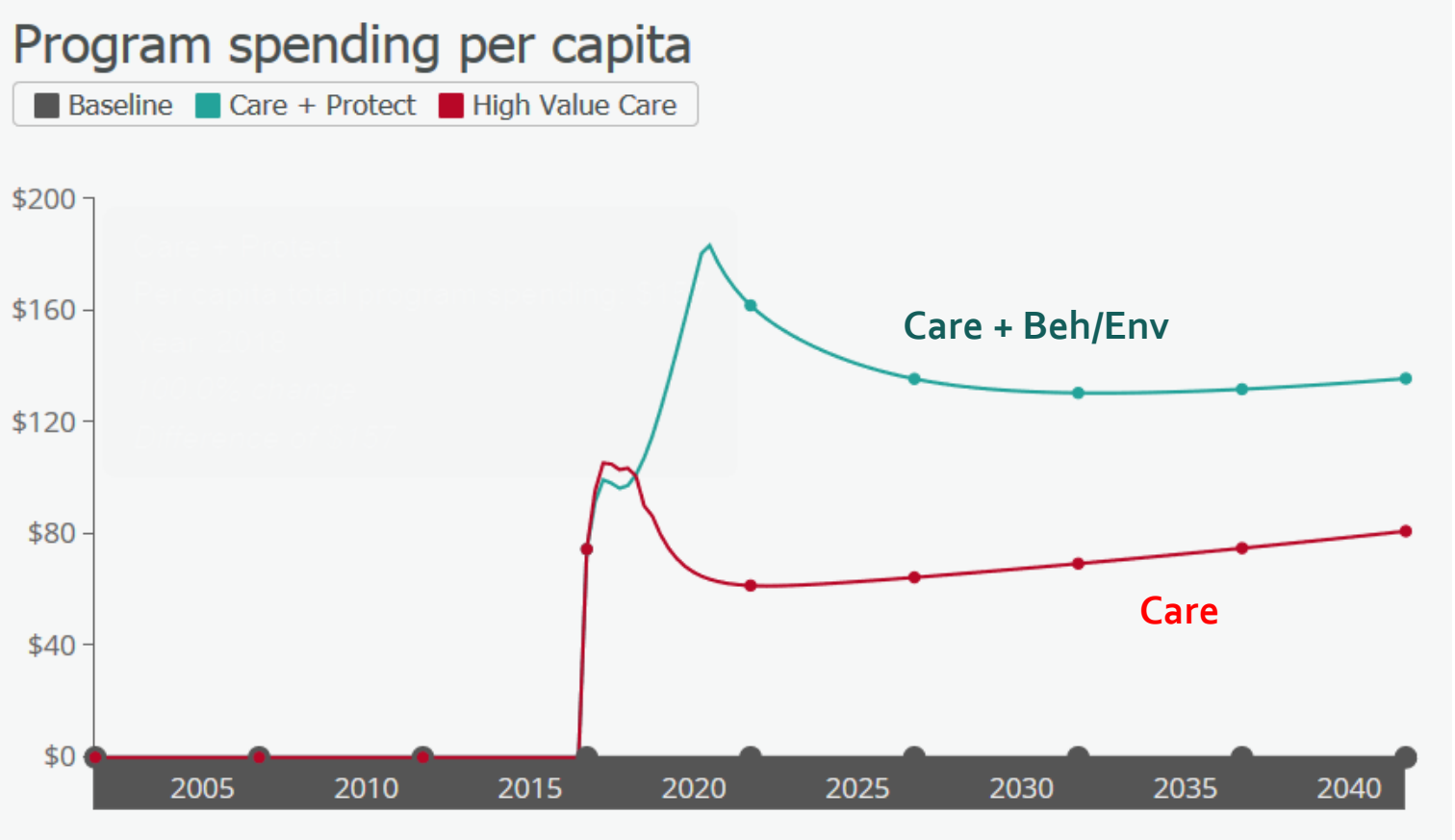


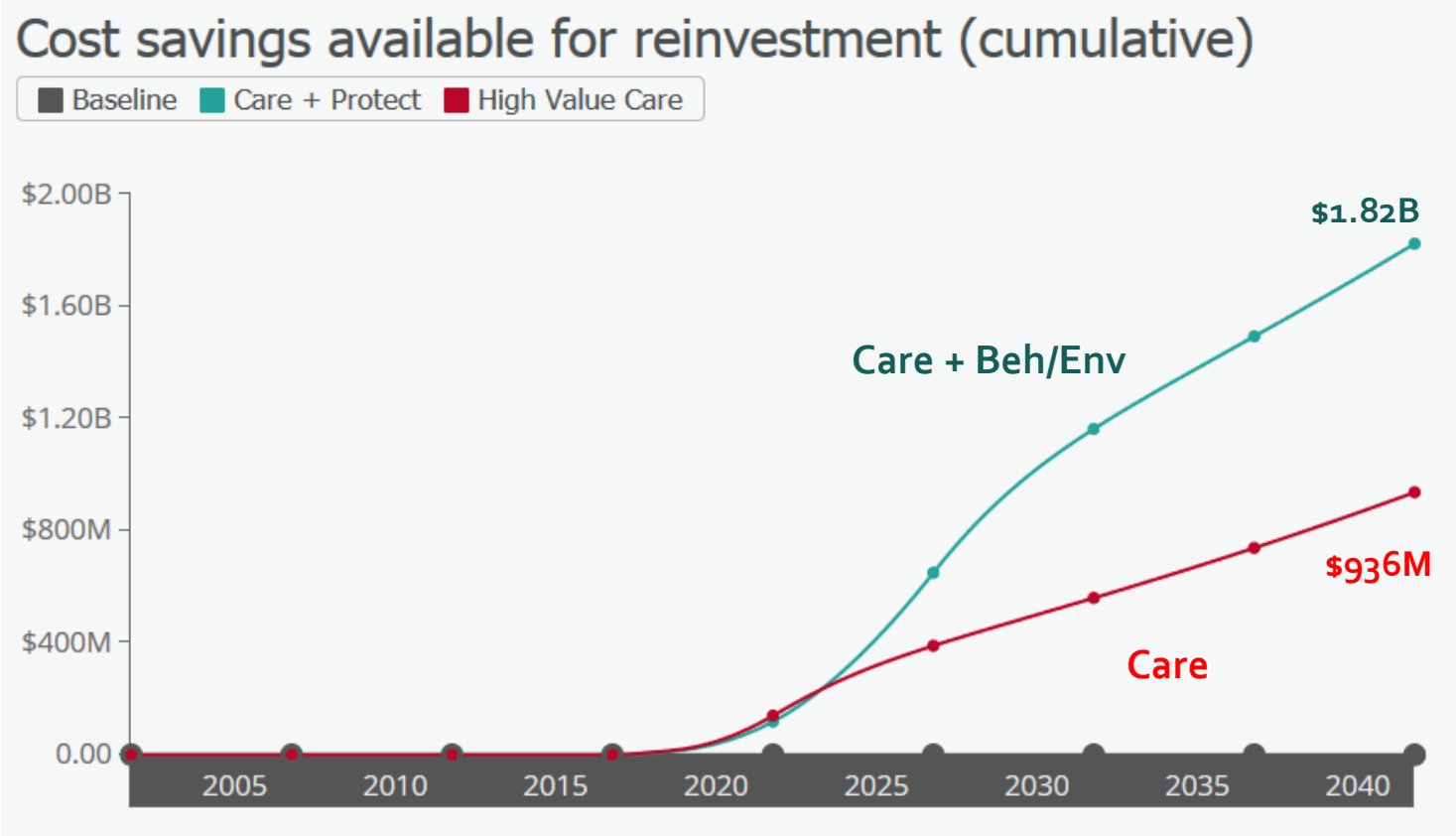
Some Insights: Spending & Yield

- **Balanced initiatives are more expensive to implement**



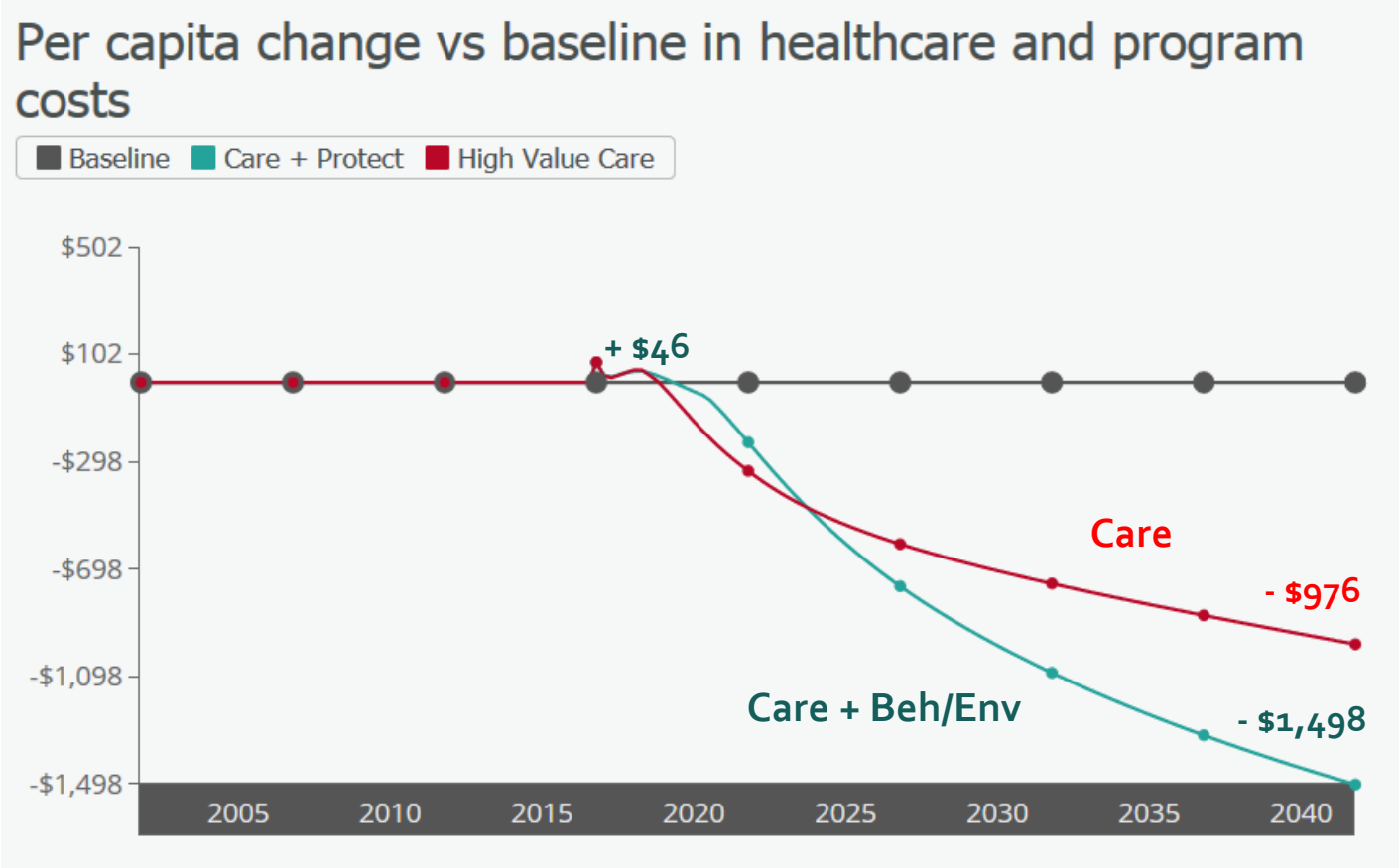
Some Insights: Spending & Yield

- **But they may be affordable, especially when coupled with gains from downstream reforms**



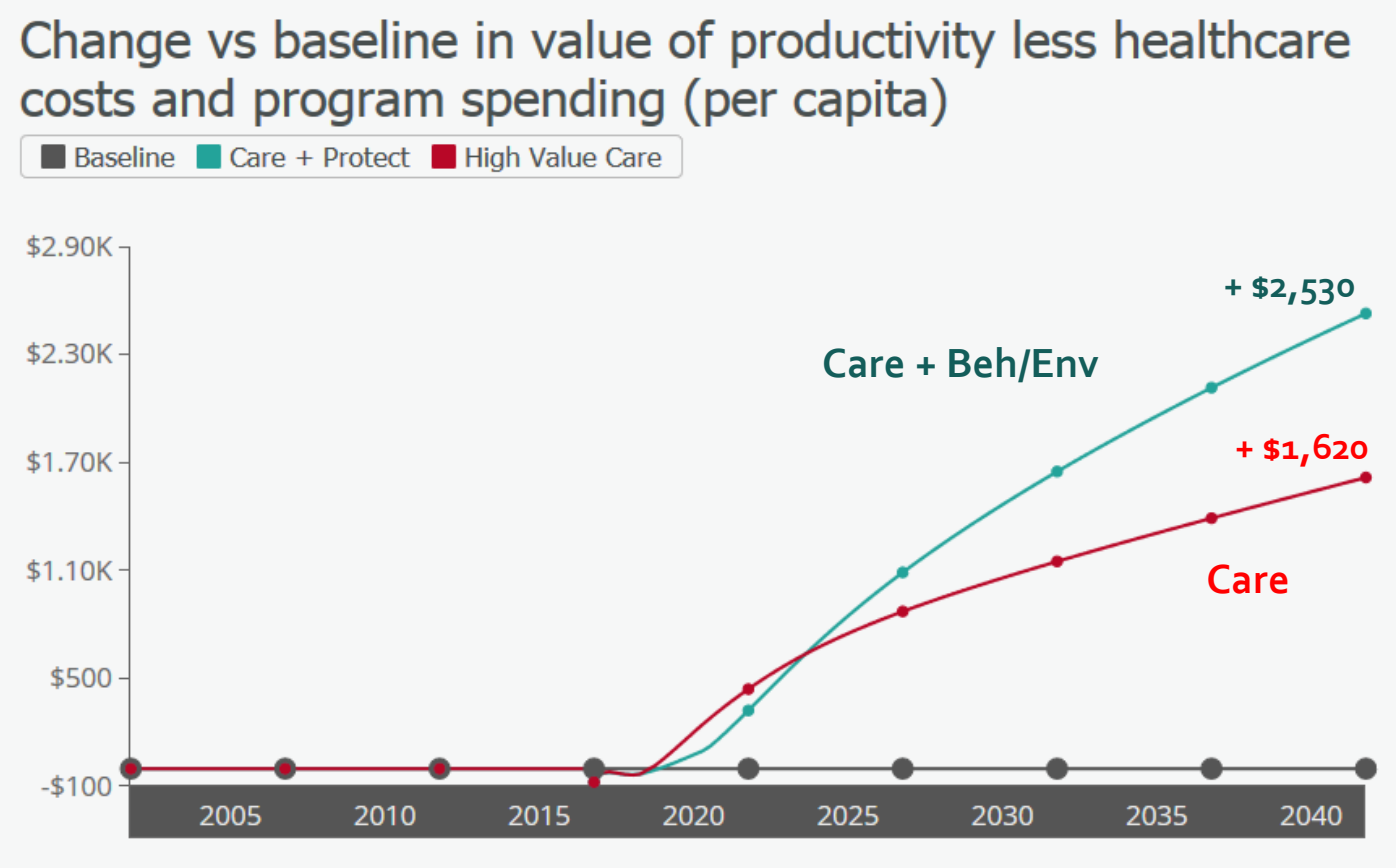
Some Insights: Spending & Yield

- **Many regions may not be able to afford *not to* make these cost-saving investments**



Some Insights: Spending & Yield

- **Beyond reducing health care costs, balanced strategies could drive greater economic productivity**



Like all models, this tool is an…

Inexact representations of the real thing

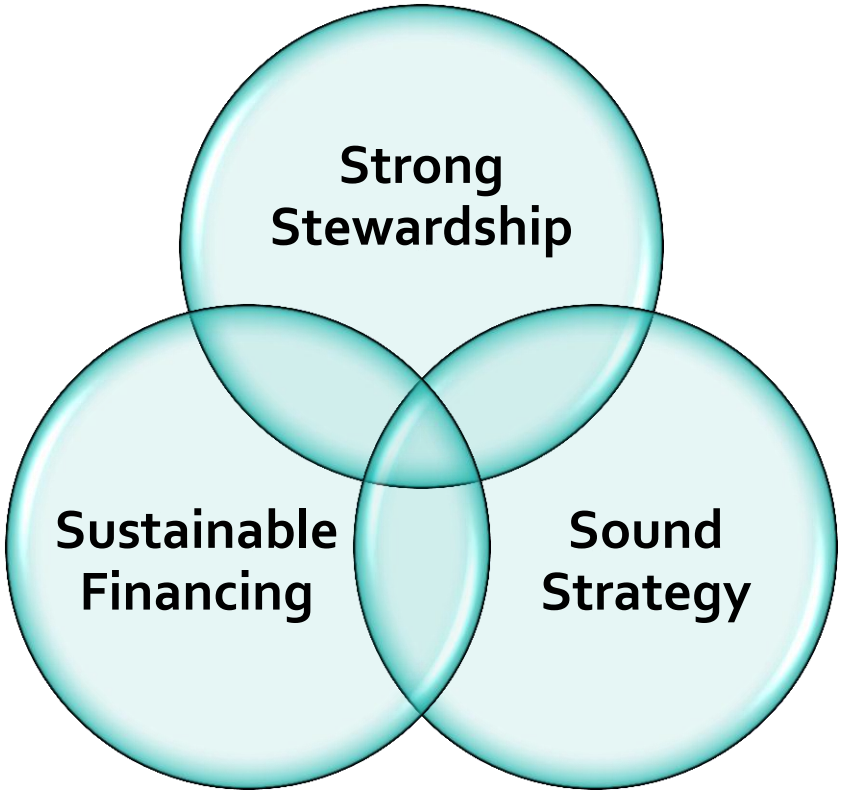
Special considerations

- Boundary
- Time horizon
- Aggregation
- Uncertainties

Sterman JD. All models are wrong: reflections on becoming a systems scientist. System Dynamics Review 2002;18(4):501-531. Available at <http://web.mit.edu/jsterman/www/All_Models.html>

Sterman J. A sketpic's guide to computer models. In: Barney GO, editor. Managing a Nation: the Microcomputer Software Catalog. Boulder, CO: Westview Press; 1991. p. 209-229. <http://web.mit.edu/jsterman/www/Skeptic%27s_Guide.html>

Modeling Provides a Critical Strand



ReThink Health modeling helped people discover surprisingly strong areas of consensus. It helped us sail through a step where we might otherwise have gotten stuck.

Karen Minyard
Co-Chair
Atlanta Regional Collaborative for Health Improvement

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Evidence of Impact

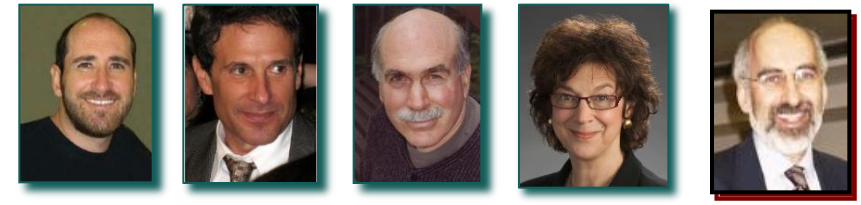
- **Individuals** **~100%** think differently, shift priorities, build competencies, and refocus their roles
- **Groups** **~90%** move toward consensus-building and seek different or missing perspectives
- **Strategies** **~30%** (within 6 months) change organizational structures, policies, investments
- **Methods** **~85%** use system science to set strategies and shape investments

Health and Resilience

health, care, cost, equity, productivity

ReThink Health

History of the ReThink Health Dynamics Model



Selected Awards

- **2013 Society for Health Education, Article of the Year**
- **2012 AcademyHealth, Public Health Systems Research Article of the Year**
- **2011 System Dynamics Society Best Application of SD Modeling**
- **2009; CDC Honor Awards for**
  2005 Excellence in Innovation
- **2008 ASysT Institute, Applied Systems Thinking Prize**

Refs: http://tinyurl.com/RTH-Related-Models

- **2008-2011: HealthBound**
  US health reform strategy
  Sponsor: CDC
  Publications: HA 2011; AJPH 2010
- **2003-present: Diabetes; Obesity; PRISM**
  Multiple chronic diseases, US & 60+ sites
  Sponsors: CDC and NIH
  Publications: HPP 2012; PCD 2010; AJPH 2010; PCD 2008; PCD 2007; AJPH 2006
- **2005-2006: US Health Economy**
  Growth of US health sector, 1960-2010
  Sponsor: CDC
  Publications: SDR 2006
- **1995-1997: Health Care Microworld**
  Local health, health care, social policy
  Sponsors: NEHA and Innovation Associates, Dartmouth-Hitchcock
  Publications: SDR 1999
- **1993: Transition to Capitation**
  Local healthcare financing
  Sponsor: Healthcare Forum
  Publication: Health Forum J 1994

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Information Sources: Anytown, USA

Anytown USA represents a perfect microcosm of the nation overall, at a scale of 1:1,000. Some of the main data sources are…

- U.S. Census and American Community Survey
- Vital Statistics
- Health, United States
- National Health and Nutrition Examination Survey (NHANES)
- Behavioral Risk Factor Surveillance Survey (BRFSS)
- National Survey of Children's Health (NSCH)
- National Ambulatory Medical Care Survey (NAMCS)
- National Hospital Ambulatory Medical Care Survey (NHAMCS)
- National Hospital Discharge Survey (NHDS)
- National Nursing Home Survey (NNHS)
- National Home Health Care Survey (NHHS)
- Medical Expenditure Panel Survey (MEPS)
- Healthcare Cost and Utilization Project National Inpatient Sample (HCUP-NIS)
- National Health Expenditures (NHE)

ReThink Health modeling opened our eyes. It offered perspectives on big impact changes that might not pay off right away.

Christine-Nevin Woods
Executive Director
Pueblo City-County Health Department, CO

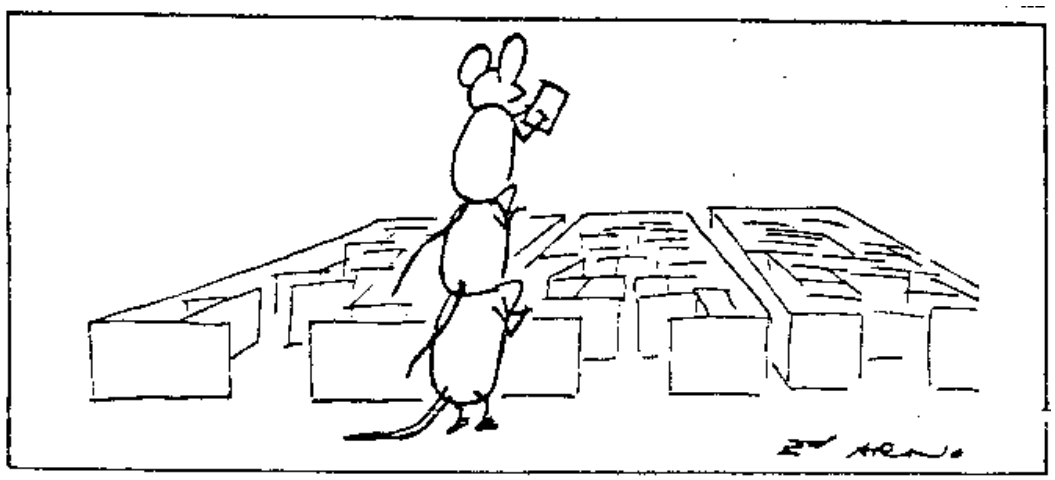
We saw how savings could yield a revenue stream down the road that would sustain the work. It showed that we can achieve the change we want by transition, we don't need to tear down everything and start over.

Emile Runge
Health Policy Advisor
Fulton County Commission

Selected Examples of Impact

- **Atlanta** priorities, playbook, engagement, investment
- **Pueblo** priorities, backbone org, core capital
- **New England** regional integration, endowment fund for health
- **RWJF** multi-phase effort on investment and stewardship
- **IOM** tools for accelerating innovation
- **PCAST** report to the President
- **Universities** curricula, competencies, engagements, initiatives

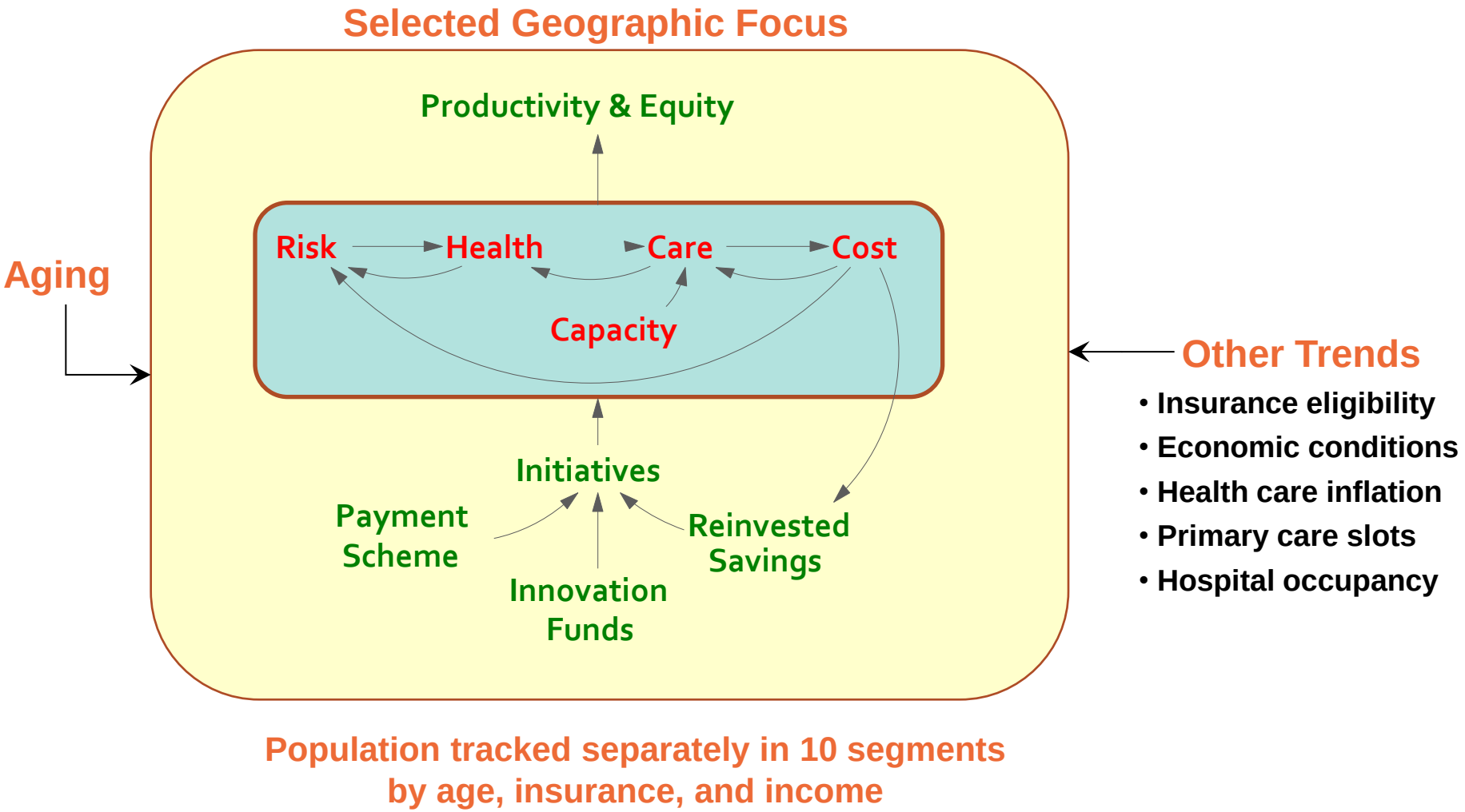
Simulating Local Health System Dynamics



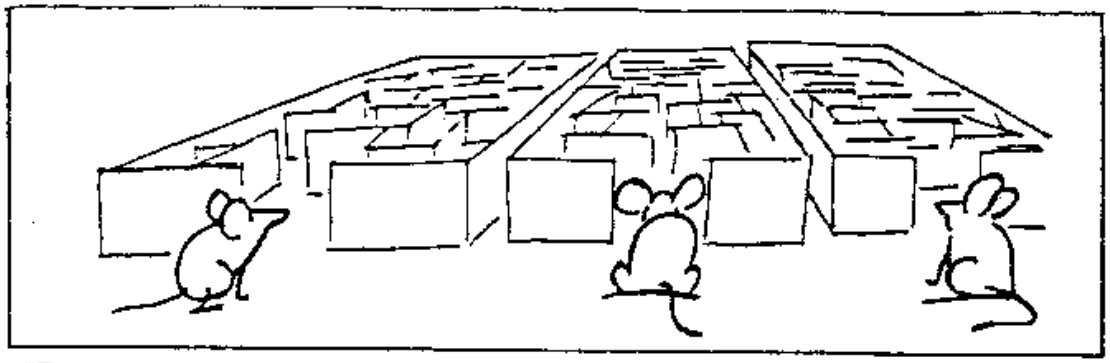
- **Realistic yet simplified representation of a local health system (N=9 to date)**
- **Place-based, wide-angle view; diverse scenario options; scores of metrics to trace changes over decades**
- **Anchored to evidence from dozens of datasets, rendered in a common—testable—framework**
- **Tool for open, experiential learning with diverse stakeholders**
- **Not a prediction, but a way to see and feel how the health system could change under different conditions**

ReThink Health. Summary of the ReThink Health Dynamics model.
Available at http://rippelfoundation.org/docs/RTH-Dynamics-Model-Summary.pdf

ReThink Health Model – Overview

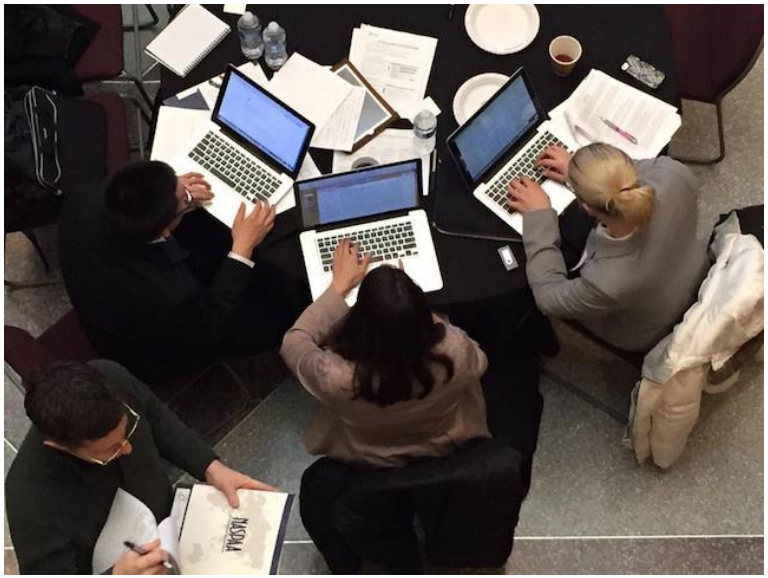


Seeing a Wider System



Many pathways

National Association of Schools of Public Policy, Affairs, and Administration



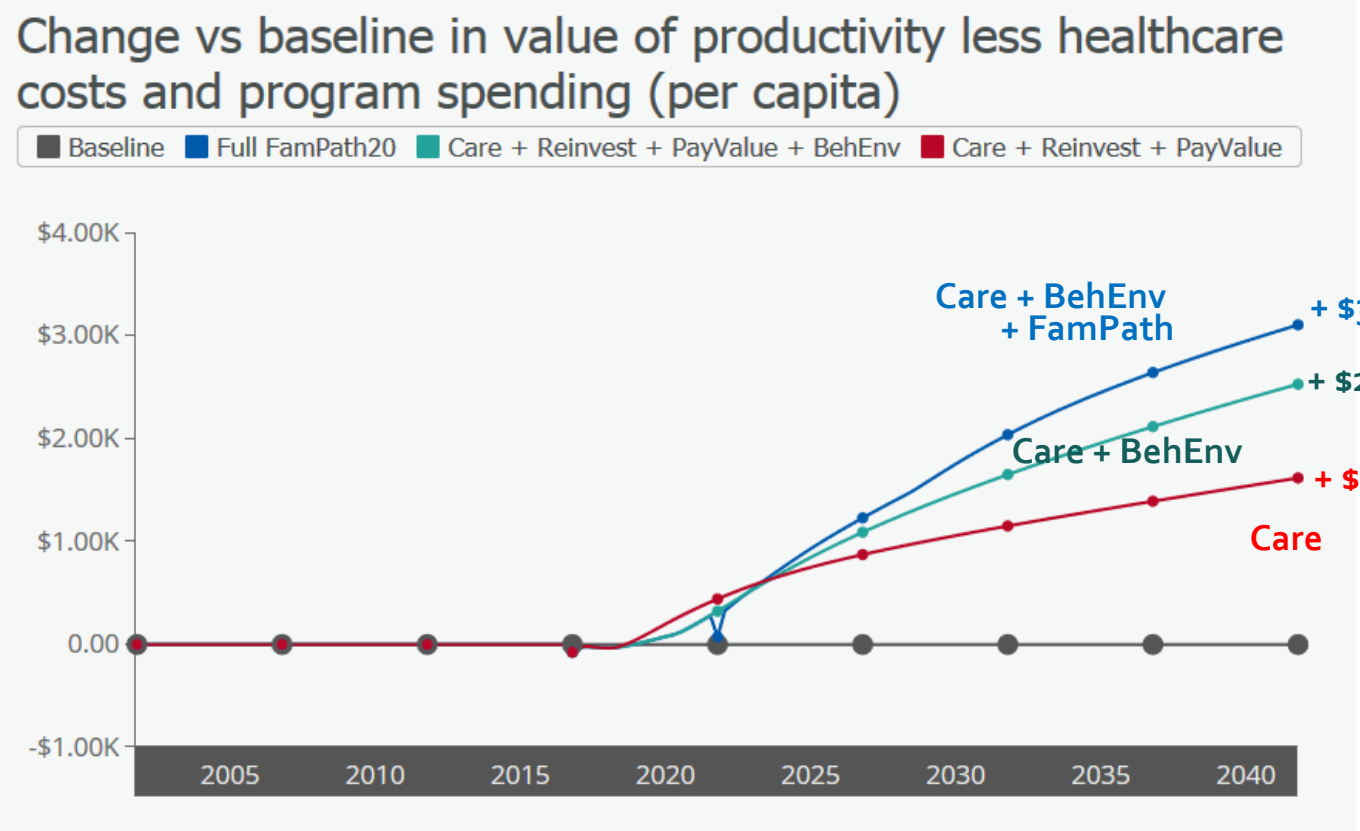
181 graduate students from 93 schools

Their job was to apply skills learned in the classroom to develop a real-world solution that took into account intervention tactics, stakeholder needs and financial models.

Dentzer S. It takes more than a village to improve community health. The Health Care Blog. October 14, 2014. Available at http://thehealthcareblog.com/blog/2014/10/14/it-takes-more-than-a-village-to-improve-community-health/

Some Insights: Spending & Savings

- Balanced investments are expensive, but may still be affordable.
  - Many regions, may not be able to afford full-scale upstream initiatives *unless* coupled with gains from downstream reforms
  - May not be able to afford *not to* make these cost-saving investments



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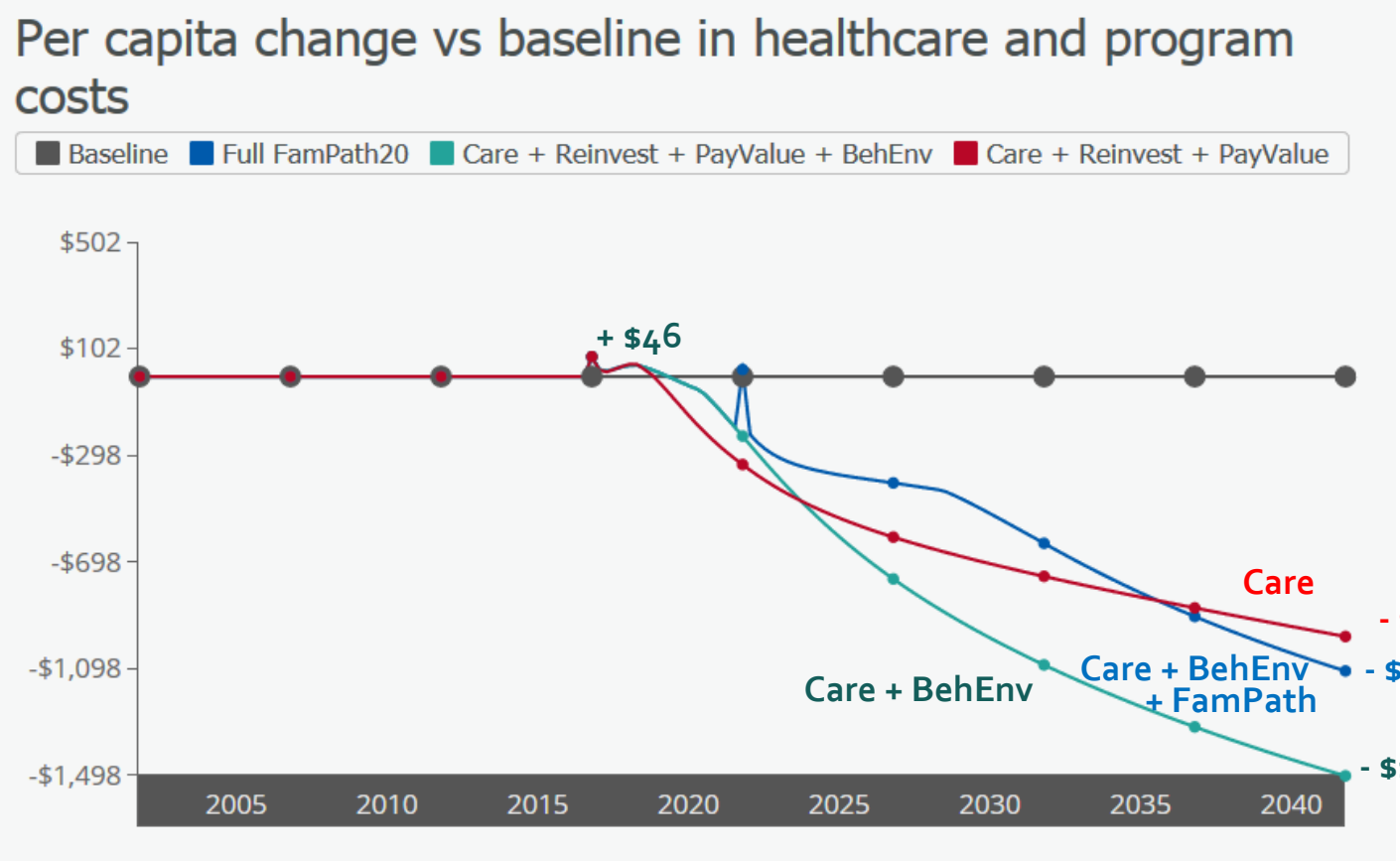
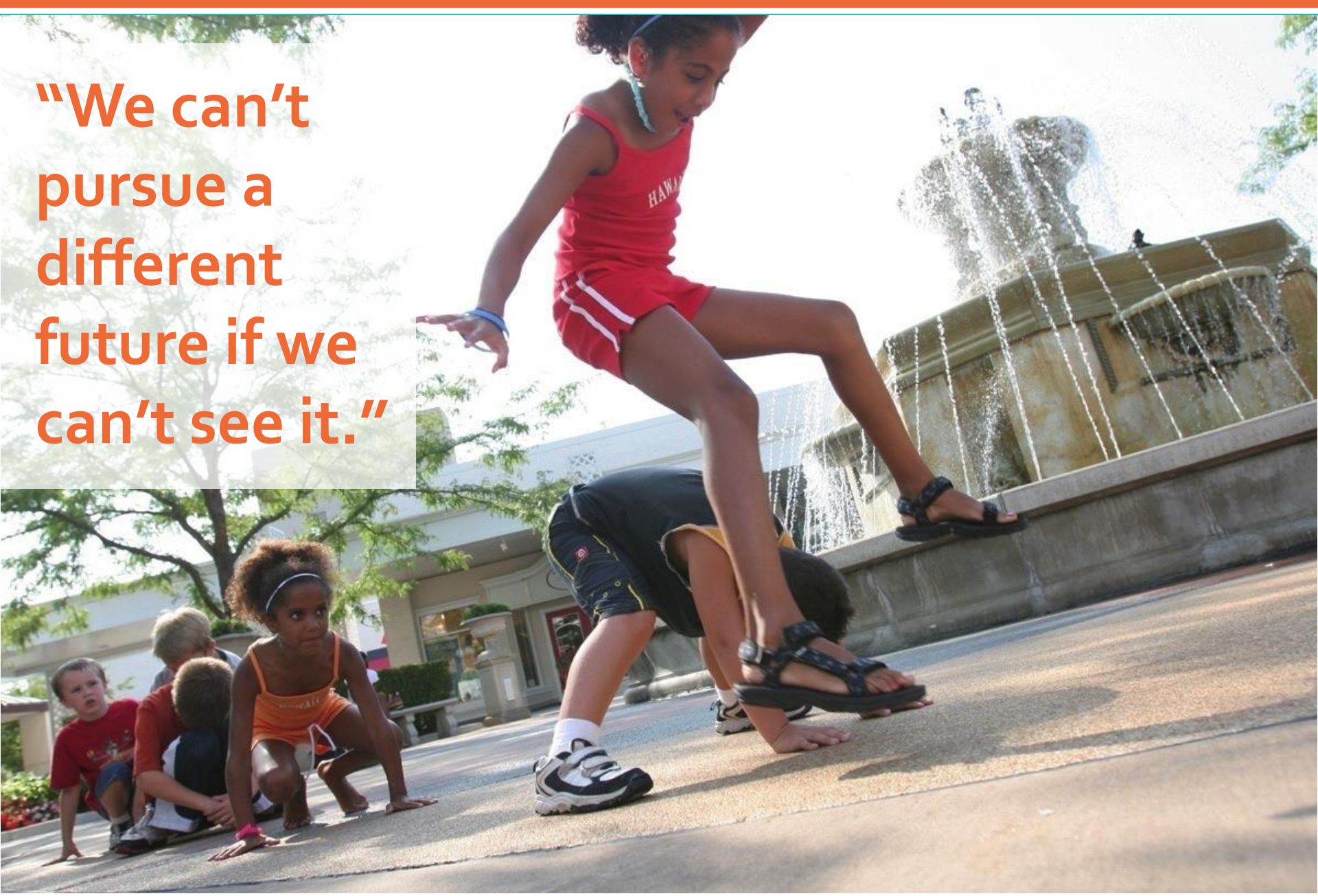
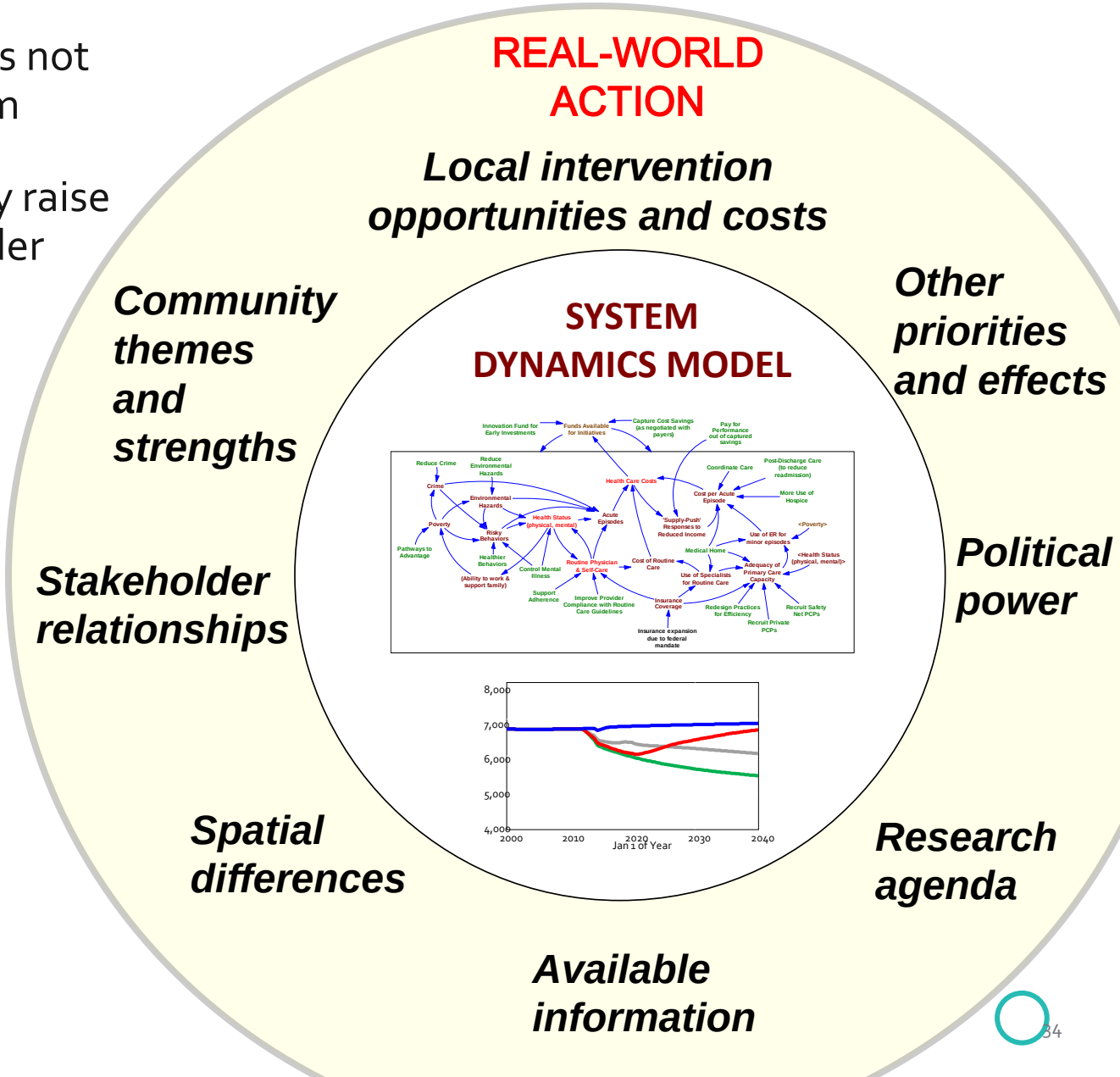



"We can't pursue a different future if we can't see it."

Conversations Around the Model

- What's in the model does not define what's in the room
- Simulations intentionally raise questions to spark broader thinking and judgment
- *Boundary judgments follow from the intended purpose and users*



Scenario 1: Downstream Care

High-Value Preventive & Chronic Care

What to Do?	How to Pay?
Investments	**Financing**
✓ Coordinate care ✓ Establish medical homes ✓ Improve preventive and chronic care ✓ Support self-care ✓ Redesign primary care for efficiency	• 1% Innovation fund ($24M x 5 yrs = $120M) • Gain sharing agreements (50/50 split with insurers) • Pay for value (per capita payment)

* Definitions and assumptions about effect size, cost, and time delay are available at: http://www.rethinkhealth.org/wp-content/uploads/2015/02/Interventions.pdf

Scenario 2: Downstream Care + Upstream Protection

High-Value Preventive/Chronic Care + Healthier Behaviors and Environments

What to Do?	How to Pay?
Investments	**Financing**
✓ Coordinate care ✓ Establish medical homes ✓ Improve preventive and chronic care ✓ Support self-care ✓ Redesign primary care for efficiency ✓ **Enable healthier behaviors** ✓ **Reduce environmental hazards**	• 1% Innovation fund ($24M x 5 yrs = $120M) • Gain sharing agreements (50/50 split with insurers) • Pay for value (per capita payment)

* Definitions and assumptions about effect size, cost, and time delay are available at: http://www.rippelfoundation.org/docs/Interventions.pdf

Scenario 3: Care + Protect + Pathways

High-Value Preventive/Chronic Care + Healthier Behaviors and Environments + Family Pathways

What to Do?	How to Pay?
Investments	**Financing**
✓ Coordinate care ✓ Establish medical homes ✓ Improve preventive and chronic care ✓ Support self-care ✓ Redesign primary care for efficiency ✓ Enable healthier behaviors ✓ Reduce environmental hazards ✓ **Expand pathways to advantage for families**	• 1% Innovation fund ($24M x 5 yrs = $120M) • Gain sharing agreements (50/50 split with insurers) • Pay for value (per capita payment)

Illustrative Scenarios

What to Do?	How to Pay?
Investments	**Financing**
• **High-Value Preventive/Chronic Care** • **Care + Healthier Behaviors/Environments** • **Care + Beh/Env + Pathways to Advantage**	• **1% Innovation fund** ($24M x 5 yrs = $120M) • **Gain sharing agreements** (50/50 split with insurers) • **Pay for value** (per capita payment)

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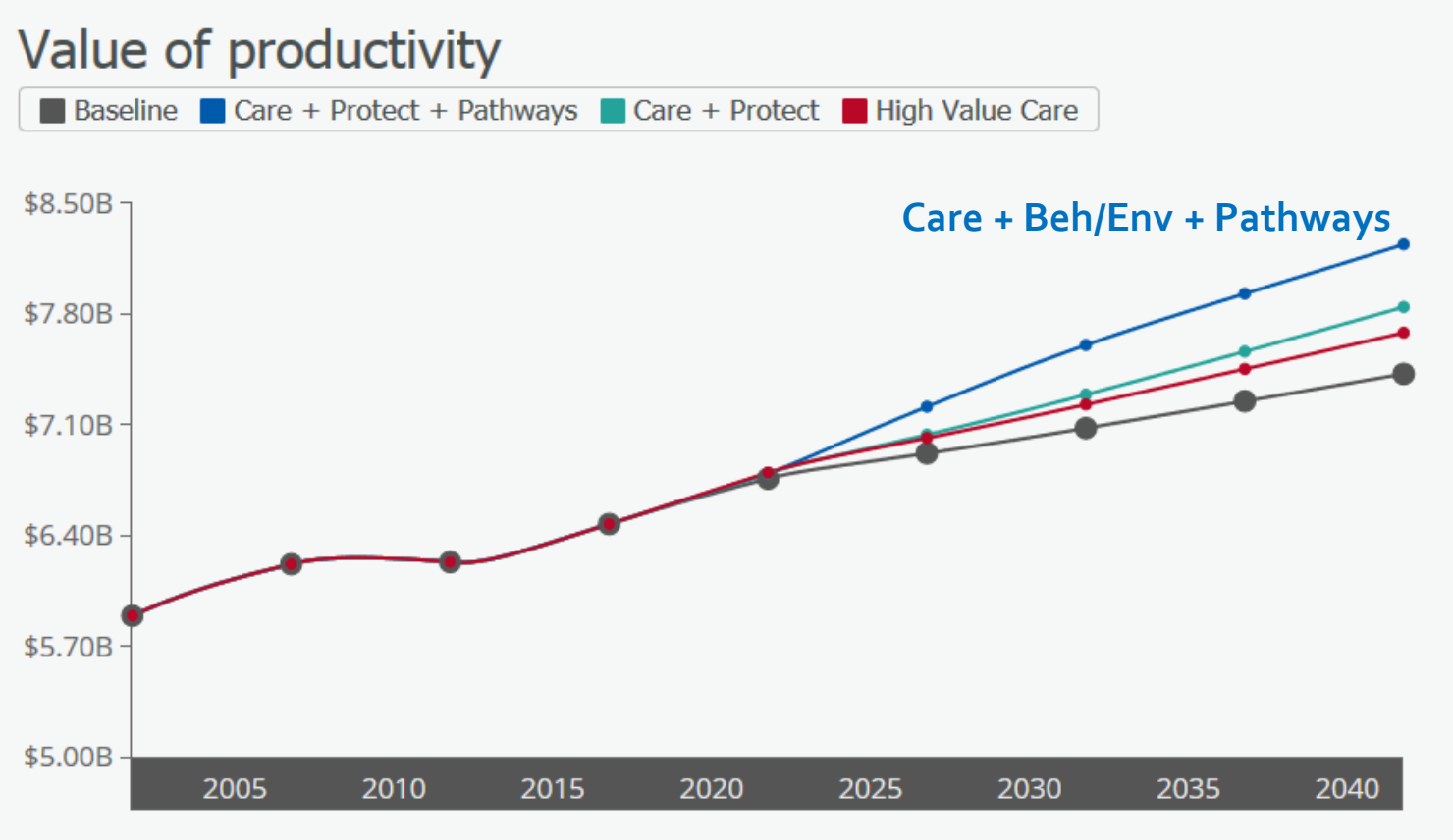
Some Insights: Workforce Productivity

- XYZ



Some Insights: Inequity

- XYZ