

What is the HealthBound game?

HealthBound is an interactive policy simulation tool developed by CDC to bring more structure, evidence, and creativity to the challenge of health system change. With its ability to anticipate how dozens of interventions are likely to affect health status, health equity, and health care cost over 25 years, it can advance the movement for health reform: informing and inspiring diverse contributors to discover, for themselves, why health is more than health care as well as the benefits of emphasizing health protection and health equity as integral parts of the American health system.

Who are the intended players?

Anyone who leads change nationally, or in their own sphere of influence, may benefit by first testing and refining their ideas in this realistic, but simplified version of the U.S. health system.

How does HealthBound work?

The game starts with four scorecard measures in an undesirable equilibrium, close to observed U.S. levels around the year 2003. Players must improve health status, health equity, and health care cost simultaneously by enacting one or more interventions. Those goals are hard to achieve, in part, because of resource constraints, time delays, and intervention side effects similar to those of the actual health system. Winning entails more than posting good scores: players must also learn why the health system responds as it does. Players can quickly see the consequences of their choices. They may chart progress every 5 years, modify strategies, and compare scenarios to weigh tradeoffs. A map of causal pathways lets players identify the precise reasons for patterns observed in the game. Players may enact popular proposals, explore new ideas, rule out ineffective strategies, and gather support for more promising scenarios.

What is the science behind the game?

The game integrates findings from prior studies on health system performance. Behind the scenes lies an explicit mathematical model, with a transparent causal structure and several hundred interacting elements, which anchor the game to available data and experience. We believe this is the most integrative, albeit simplified, tool available to support system-wide strategy design and policy evaluation. It does not make precise forecasts, but rather supports prospective, critical thinking about how the health system functions and, more importantly, what can be done to steer the U.S. toward better health, equity, and cost-effectiveness.

What kind of insights does the game deliver?

Through both cognitive and experiential learning, the game shows how well-crafted strategies can significantly improve U.S. health system performance. It clarifies roles for many types of interventions, including those that safeguard health and promote social equity along with those that enhance health care access, quality, and cost. Players encounter well-documented but frequently overlooked relationships that drive system-wide dynamics. Much can be learned by simulating one intervention at a time. However, most interventions have both desirable and undesirable effects, suggesting the need for a mixed strategy. Five scenarios, in particular, have been studied closely and submitted to a professional journal.¹ Those analyses suggest the following plausible effects.

¹ Milstein B, Homer J, Hirsch G. Are coverage and quality enough? a dynamic systems approach to health policy. *American Journal of Public Health* (under review).

HealthBound

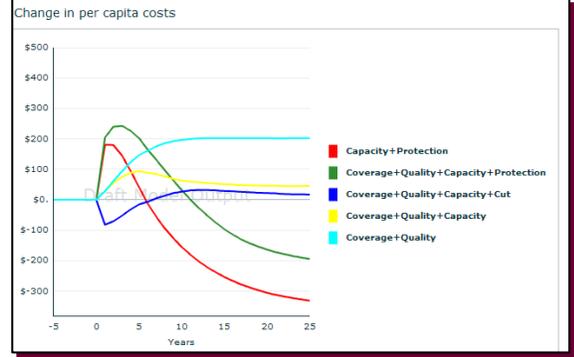
Scorecard Measures

-  Premature deaths
-  Unhealthy days
-  Health inequity index
-  Health care costs

Intervention Options

-  Expand insurance coverage
-  Improve quality of care (preventive/chronic or urgent)
-  Expand primary care supply
-  Improve primary care efficiency
-  Coordinate care
-  Simplify insurance
-  Change the self-pay fraction
-  Change reimbursement rates
-  Enable healthier behaviors
-  Build safer environments
-  Create pathways to advantage
-  Build civic muscle

- Expanding insurance coverage and improving the quality of preventive/chronic care as well as urgent care may improve population health status, but would likely raise health care costs and worsen health equity;
- Expanding primary care capacity to eliminate current shortages (esp. for the poor) could reduce costs and improve equity;
- Cutting reimbursement rates could reduce costs to some extent, but worsen health outcomes;
- Protecting health (by enabling healthier behaviors and building safer environments) could—increasingly over time—reduce costs, improve health status, and improve equity;
- To the extent that lowering health care cost is a primary concern, the cost-saving interventions of primary care capacity and health protection take on additional importance and are needed now, not later, to offset the likely cost increases from wider coverage and higher quality care.



How will the game be used?

Individuals may play alone, but the game is best used in multi-stakeholder groups, with a trained facilitator. Team play lets stakeholders interact with and learn from the game as well as from each other, which in turn increases their chances of acting more effectively in the real world.

What is its current status?

HealthBound is a work-in-progress that will be refined with new research and user feedback. It has been widely demonstrated and vetted through several stages of peer review. The developers have received several awards, including CDC’s Honor Award for Excellence in Innovation (to Bobby Milstein) and the Applied Systems Thinking Prize (from the ASysT Institute). Stakeholder demand is high, but the agency has been unable to fulfill most requests. Funds allocated in FY 09 to enable distribution were frozen in January, pending a review of all health reform activities, and have yet to be released. The game sits on a password-protected CDC web site. With funding, the following work plan could be completed.

Activity	Status	Stakeholder Requests to Play
Dynamic modeling	✓ Levels 1 and 2 (w/ rising prices, aging)	✓ Peer reviewers
Scientific vetting	✓ Stakeholder demos/reviews (N~400)	✓ Re>Think Health Group (IHI + Rippel)
	✓ Tech documentation and peer review	✓ National Public Health Leadership Inst.
	✓ CDC clearance	• CDC Leaders
Game interface	• Publish <i>journal article</i> (submitted)	• Health Officials (ASTHO, NACCHO)
	✓ Demo version	• NALBOH
	• Improve online interface	• NNPHI
Facilitator training	• Create <i>playbook materials/videos</i>	• University educators (e.g., ASPH)
Interventions	• Train and certify a <i>cadre of facilitators</i>	• Federal agencies (e.g., NIH)
Funding	• Compile materials for <i>action planning</i>	• Health insurers (e.g., Humana)
	• Unfreeze FY09 allocation (\$200,000)	• Foundations (e.g., RWJF)
	• Seek external sponsors (w/ CDC Found.)	• Conferences (e.g., Games for Health)
	• Approx. \$200,000-\$350,000 is needed	

Who are the developers?

CDC lead: Bobby Milstein (770-488-5528; bmilstein@cdc.gov)

System modelers: Jack Homer (856-810-7673; jhomer@comcast.net)
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