ANNALS OF FAMILY MEDICINE

Online Supplementary Material

Stange KC, Ferrer RL, Miller WL. Making sense of health care transformation as adaptive-renewal cycles. *Ann Fam Med*. 2009;7(6):484-487.

http://www.annfammed.org/cgi/content/full/7/6/484/DC1

Supplemental Appendix: Managing for Resilience in Health Care

Robert L. Ferrer, MD, MPH, Associate Editor

Social and ecological scientists developed the resilience framework to help understand systems' behavior and guide transformative changes. By *transformation* its developers meant "the capacity to create a fundamentally new system when ecological, economic, or social (including political) conditions make the existing system untenable."[1] They recognized that large-scale changes occurring in the physical, biological, and social environment need to be understood as the product of macro-level changes (such as economic globalization) interacting with local economies and ecosystems.[2] Ignoring these interactions leads to 2 errors that often undermine attempts to change: On the one hand, solutions that fail to acknowledge local systems' embeddedness in larger forces will often crumble with time as the underlying determinants of behavior reassert themselves. On the other hand, solutions developed without considering local needs or power relationships will seldom be successfully adopted.[3] These cross-scale interactions between policy, institutions, communities, and the behavior of individual agents are the key to formulating reform strategies in the face of uncertain futures.[2] A key insight that emerges from the resilience framework is the difference between managing for stability and managing for resilience.[4] One seeks to maintain the stability of the organization, whereas the other seeks to maintain the integrity of key functions.[5] These differences in perspective and behavior are explored below in the context of health reform.

Managing for Stability

Most health care organizations, large or small, manage for stability. They logically stress maintaining organizational integrity. To protect their organizations' financial viability, managers' time horizons are typically short and focused on near-term economic performance.[6] Although difficult times may force them to question their assumptions about appropriate inputs and outcomes, they often do so within a narrow field of vision, concentrating mainly on counting visits or procedures within disciplinary boundaries. By focusing on a few easily quantified parameters, systems are made more legible—albeit on restricted terms[3]— and the task of clinical governance is simplified. This strategy is far less complex than managing toward multifactorial outcomes, such as health status. To further simplify matters, the few key parameters are usually managed under the assumptions of predictability and linear responses.[7]

But this narrow perspective often becomes maladaptive as changing environmental conditions demand that different goals be achieved. For example, when clinical outcomes are the yardstick rather than visit counts, managing success becomes much more complex. A system that has evolved to support face-to-face time with a physician, with drug prescribing as the primary intervention, cannot easily transform to team-based care whose chief preoccupation is nurturing coping skills.[8]

In addition to managing narrowly, organizations tend, with time, to become overly dependent on the many entities they rely on to sustain them, thus ceding power and autonomy (the other entities often depend on the relationship for their own stability). As the organization becomes less responsive to its environment, these rigid interconnections make the overall system brittle and vulnerable to catastrophic collapse.[2] Even so, powerful organizations' ability to forestall the environmental changes that would bring them down often succeeds in prolonging their survival for long periods even when

caught in this rigidity trap. In health care, the many connections among practices, pharmaceutical manufacturers, device makers, and insurers illustrate these tightly woven patterns of codependence. Yet each sector is at the same time engaged in its own intense power struggle to manipulate the large-scale policy context in a way that would preserve, as much as possible, its own status quo.

Managing for Resilience

Managing for resilience presupposes that under conditions of uncertainty, it is not rational to govern systems with the goal of preventing change. Rather than maintaining a particular organizational configuration, what is important is to preserve a set of key functions.[9] These key functions or services are those activities necessary to deliver the desired outcomes. In health care, these functions would encompass those necessary to improve not only disease-focused outcomes, but also patients' overall functional status, general well-being, and preservation of autonomy. Functions for other stakeholders are also important, including how well-care is coordinated among health care disciplines, how public health needs are incorporated, and how community priorities are addressed.

Recalling the pivotal importance of attention to macro-micro interactions in devising good solutions, resilience managers are wary of panaceas.[10] These "blueprint" solutions often fail because they are unable to respond effectively to local conditions or power relationships.[11] This cautionary note will be important to bear in mind as the movement toward a patient-centered medical home (PCMH) model continues. At present the PCMH is formulated as a set of best-practices for primary care.[12] Many of these practices are grounded in evidence,[13] yet as the experience with diffusing best practices in agriculture has demonstrated, progress can come at the extent of resilience, as exemplified by single-crop fields that are heavily dependent on fertilizers and pesticides to overcome the limitations of local soils and the threat of parasites.[14] In the same way, rolling out the PCMH as a monolithic template fails to respect the different needs of communities across the spectrum of wealth, culture, and geography. As some of the medical home demonstration projects are finding, local control and tailoring is essential to assemble the right services in the right place.[15]

The alternative to panaceas is to pursue a diversity of solutions that achieve the key functions—access, continuity, coordination, personalization, cost-effectiveness, community responsiveness[16]—in different ways. Exploring an assortment of potential solutions in different local contexts fosters local learning, which can then be followed by higher-level synthesis about which contexts support what types of solutions.[17] Healthy systems embrace this diversity, whereas unhealthy systems tend to focus on single solutions.[18]

But exploring and disseminating locally adapted solutions is often not enough. The explorations must align with the current social and policy context, the "slow variables" that often change on much longer timescales than cycles of innovation.[19] When the social or policy climate is unreceptive, innovations often fail to take root, or they soon wither in the face of resistance. Conversely, when fast and slow variables align, the result is often rapid transformation.[20] A goal of those who would seek transformation, therefore, is to change the larger context, to create a social or policy landscape that is ready to support the innovations.

Considering primary care reform again, it may be instructive to compare the brief primary care expansion that occurred in the managed care era of the early 1990s with today's movement toward the patient-centered medical home. Whereas the reversal of primary care expansion in the last decade was triggered by the widespread perception that managed care's objective was solely to restrain costs, today's discussion is centered on improving quality and patient experience.[6] There is also outside endorsement from large associations of business leaders.[21] The macro context thus appears to be more favorable, although the one high-level variable yet to fall into place is a financial mechanism to support the PCMH model.

Finally, as with any transformation, leadership is important, whether top-down or bottom-up. Leadership for resilience requires both strategies. It aims to be a humble leadership of discourse, assembling a shared vision to create flexible structures.[20,22] This discourse must transcend disciplinary and sectoral boundaries,[23] respecting and adapting to conflict rather than suppressing it. Seeking input from those who have been customarily excluded will help generate fresh insights about important

goals. In operational terms, this type of collaboration entails health care organizations talking directly to their local community leaders, policy makers, and payers to devise new ways of organizing, coordinating, and funding care that makes sense for their community. In the best case, a wave of these small-scale revolutions will help the health care system to escape its rigidity trap and renew itself.

References

1. Walker B, Holling CS, Carpenter SR, Kinzig A. Resilience, adaptability and transformability in social—ecological systems. *Ecology and Society*. 2004;9:5.
2. Gunderson LH, Holling CS. *Panarchy: Understanding Transformations in Human and Natural Systems.* Washington, DC: Island Press. 2002.
3. Scott JC. *Seeing Like A State: How Certain Schemes to Improve the Human Condition Have Failed.* New Haven, CT: Yale University Press; 1998.
4. Holling CS, Meffe GK. Command and control and the pathology of natural resource management. *Conservation biology*. 1996;10(2):328-337.
5. Gunderson LH. Ecological resilience—in theory and application. *Ann Rev Ecol Systematics.* 2000;31:425-439.
6. Porter ME, Teisberg EO. Redefining competition in health care. *Harv Bus Rev.* 2004;82:64-76, 136.
7. Sterman JD. Learning from evidence in a complex world. *Am J Public Health.* 2006;96(3):505-514.
8. Greenhalgh T. Patient and public involvement in chronic illness: beyond the expert patient. *BMJ.* 2009;338:b49.
9. Chapin III FS, Kofinas GP, Folke C. *Principles of Ecosystem Stewardship: Resilience-Based Natural Resource Management in a Changing World.* New York, NY: Springer; 2009.
10. Ostrom E, Janssen MA, Anderies JM. Going beyond panaceas. *Proc Natl Acad Sci U S A.* 2007;104:15176-15178.
11. Ostrom E. A diagnostic approach for going beyond panaceas. *Proc Natl Acad Sci U S A.* 2007;104:15181-15187.
12. Patient-Centered Primary Care Collaborative. Joint principles of the patient centered medical home. Web site. http://pcpcc.net/.
13. Rosenthal TC. The medical home: growing evidence to support a new approach to primary care. *J Am Board Fam Med.* 2008;21(5):427-440.
14. National Research Council Committee on Genetic Vulnerability of Major Crops. *Genetic Vulnerability of Major Crops.* Washington, DC: National Academies; 1972.
15. Steiner BD, Denham AC, Ashkin E, Newton WP, Wroth T, Dobson LA. Community care of North Carolina: improving care through community health networks. *Ann Fam Med.* 2008;6(4)0361-367.
16. Ferrer RL, Hambidge SJ, Maly RC. The essential role of generalists in health care systems. *Ann Intern Med.* 2005;142(8):691-699.
17. Pawson R1, Tilley N. *Realistic Evaluation* . London ; Thousand Oaks, CA: Sage Publications; 1997.
18. Berry W. Solving for pattern. In: Wendell B. *The Gift of Good Land.* San Francisco, CA: North Point Press; 1981:134-145.
19. Holling CS. Understanding the complexity of economic, ecological, and social systems. *Ecosystems.* 2001;4:390-405.
20. Westley F, Patton MQ, Zimmerman B1. *Getting to Maybe : How the World is Changed.* Toronto, Canada: Random House; 2007.
21. Sepulveda MJ, Bodenheimer T, Grundy P. Primary care: can it solve employers' health care dilemma? *Health Aff (Millwood).* 2008;27(1):151.
22. Jordan ME, Lanham HJ, Crabtree BF, et al. The role of conversation in health care interventions: enabling sensemaking and learning. *Implement Sci.* 2009;4(1):15.
23. Abrahamson E, Fombrun CJ. Macrocultures: Determinants and consequences. *Acad Manage Rev.* 1994;19:728-755.