Local Governance of Healthcare: A Missing Ingredient for Reform

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Although some politicians and activists continue to press for repeal of the 2010 Patient Protection and Affordable Care Act (ACA, popularly known as Obamacare), all of the primary stakeholders in the health care sector of the economy (physicians, hospitals, insurance companies, private firms, government agencies, community organizations, and ordinary citizens) have begun adapting to this new reality. Frankly, much of the endless political infighting at the national and state levels is fundamentally misguided, since the delivery of health care is an intrinsically local affair, with the bulk of care occurring within local networks linking providers, patients, and all other members of the local community.

This paper advocates a regional path to reforming U.S. health care. This focus on regionalism is necessary, possible, and normatively desirable, but far from easy to realize. Necessary, because moving to the level of metropolitan or rural regions offers a means of bypassing bitter partisan debates that threaten to paralyze reform at the national and state levels. Possible, because existing regional variation in the costs and quality of health care demonstrates that some communities are more effective in managing local resources relevant to health and health care, and that other regions can learn from their success. Normatively desirable, if these changes can improve health, save money for providers and patients, and improve the experience of care for patients and providers alike. This last point is where so many difficulties reside, and why it's so difficult to even imagine any solutions that do not fit easily into the limiting schema of the prevailing discourse between partisans on the left or the right.

This paper suggests a series of plausible measures, which remain as yet unproven. My primary intention is to raise awareness of an alternative way to understand why our system of health, health care, health insurance, and public health has taken on its current configuration, and to trigger new conversations that might enable us to collectively imagine and begin to implement steps towards a healthier, and regionally diverse, future system of health care for all the people of these United States.

I am by no means the first to advocate that increased attention be given to the potential for changes at the regional level. Researchers associated with the Dartmouth Atlas (http://www.dartmouthatlas.org/) used Medicare data to document regional variations in cost, utilization, and quality of health care, and conclude that this variation is caused by unsupportable deviations from the best practices set by evidence-based medicine. Although critics have questioned the extent to which different patterns of care and cost represent reasonable variation due to the wide variety of demographic and market conditions found in different regions, a recent report by the Institute of Medicine (2013) concluded that this practice variation is real and significant. However, this same report also concludes that policy-makers should not direct much of their attention to rewarding high-performing regions. The IOM researchers noted that comparable levels of variation are also found within regions, and that incentives could be more effectively directed to the decision-makers of individual provider organizations, rather than for a region as a whole.

I follow instead the lead of Elinor Ostrom, co-recipient of the 2009 Nobel Memorial Prize in Economic Sciences for her demonstration that many resource-dependent communities have devised clever and sustainable methods of governing their own behavior regarding the use and maintenance of natural resources critical to their own survival. In her Nobel speech, Ostrom (2009c) makes the broader point that complex economic systems require multiple layers of institutional responses if that system is to be

governed effectively. Gaps in governance at any level can undermine the operation of the system as a whole, and in the case of U.S. health care there is definitely a void at the regional level.

The term **governance** is used in many different ways by scholars and practitioners in diverse fields of study and practice. In a report on transportation planning in emerging "mega-regions" in the continental U.S., Ross (2011, 107) defines governance as the effort to "establish a set of rules and norms that defines practices, assigns roles and responsibilities, and guides interactions between organizations, in order to tackle collective problems." Governance is a process, involving not just government agencies but also private, professional, and voluntary organizations whose behavior also significantly affects societal outcomes. Collaboration among public agencies, private firms, and voluntary organizations has become a critically important form of governance in modern democracies, and much has been learned about when such collaborations are most likely to be successful (Bryson et al. 2006).

Regional governance for health care could be useful because the system of health care delivery has important aspects of a commons, in ways that will be detailed below. Of course, health care involves a far more complex array of resources than was the case for the simple fisheries or irrigation systems upon which Ostrom's analysis was primarily based. Her insights are still relevant, but making the case for this connection requires an extended line of argument.

My argument is presented in seven sections. The first two sections introduce the concept of a health commons and who should be held responsible for their stewardship. Section 3 develops an analogy between Ostrom's research on natural resource commons and the conditions evident in U.S. health care, and makes the modifications needed to explain conditions under which specific programs (or joint ventures) related to medical care and health promotion are likely to be sustainable. Sections 4 and 5 first lay out the challenges that arise when this analysis is taken to the level of the region as a whole and then use the case of Grand Junction, Colorado, to illustrate the minimum requirements for effective stewardship of a regional health commons. In Section 6 I offer a ten-step strategy for building effective forms of regional healthcare governance, no matter what institutional form that governance might take. The concluding section considers the extent to which provisions of the ACA that are consistent with the path to transformation that I am advocating, and suggests what other changes would need to be implemented, especially regarding interactions between individual patients and their care providers, for this plan to have any chance of success.

1. What Are Health Commons?

The U.S. health care system is deeply fragmented, along multiple dimensions (Gawande 2009, Elhauge 2010, Radley et al. 2012). Private insurance and social programs divide the population into segments with unequal levels of protection, and health care professionals are distributed among an ever-growing number of specializations with distinctive professional cultures. Health care has become a major sector of the national economy, and governments at the national, state, and local levels are deeply involved in regulating healthcare, and in implementing public health measures as well as medical care for specialized groups, notably veterans.

My argument rests on the audacious claim that this pervasive fragmentation can serve as a solid foundation upon which transformational change can be built. The source of my optimism is the realization that much of this fragmentation originated from the endless creativity of health care professionals, who continue to devise new forms of medical treatment as well as innovative programs to improve the quality of care or campaigns to promote healthier behavior. All of these programs (many

organized as joint ventures) require the coordinated efforts of participants with diverse skills, who share a common interest in resolving some specific problem.

Although most do not realize it, participants in these programs are learning how to manage **common property**, that is, resources which are made jointly available to a specific group of individuals, each of whom has only limited rights to the use of that resource. Each program or campaign brings together individuals and organizations with access to different skills and resources in order to design, fund, implement, maintain, evaluate, and improve a plan of coordinated action intended to solve a particular problem or to realize a shared aspiration. Thus, each program is jointly owned and operated by the health care provider organizations (or stakeholders) contributing to that program, and in some instances by beneficiaries as well. It is this dominance of common property in healthcare delivery that suggests the potential relevance of Ostrom's research, which demonstrated that common property is a viable response to the problems of managing resource commons, under the right circumstances.

Of course, many of the resources relevant to health care are privately owned, including the professional skills of physicians, nurses, and all other health care professions. Hospitals, clinics, and other facilities may be owned by private corporations, by religious or secular based nonprofits, or by public agencies. In addition, public health officials at local, country, state, and national levels are responsible for providing public goods that contribute to the overall health of a community. Specialized resources are restricted to those covered by an insurance plan or who are eligible because of their membership in certain groups. When it comes to health and health care, we are looking at a complex interweaving of private, public, and common property.

I use the term **stakeholder** to encompass all individuals or organizations that have a direct or indirect effect on the way health care is delivered or experienced. Among the most important stakeholder groups are (1) physicians and other health care professionals, (2) administrators of hospitals and other health care facilities, (3) commercial insurance companies and other types of health plan insurers, (4) employers in healthcare and other sectors, (5) public officials from local, state, and national agencies, (6) professional associations, (7) community service organizations, and (8) individual citizens (patients and their families, friends, and neighbors). Although each category includes actors with different specific goals or resources, these broad categories are widely used by health policy analysts.

Presumably, each component of the existing system of health care was built to improve the health of citizens needing these services. In practice, however, the system often operates in ways that undermine this basic goal. It is widely recognized that the U.S. has the most technologically advanced and expensive system of health care in the world, and yet the health outcomes of its citizens are, at best, mediocre. This incongruity manifests the absence of effective stewardship of the health care system as a whole.

The Merriam-Webster online dictionary defines **stewardship** as "the conducting, supervising, or managing of something; especially: the careful and responsible management of something entrusted to one's care." This dictionary uses stewardship of natural resources as a clarifying example, and one that is directly relevant for the purposes of this analysis. With respect to resource management, stewardship is an inter-related set of role expectations and responsibilities assigned to an individual or group, who agree to undertake prudent management of a resource so as to make sure that it remains in workable order and can continue to contribute towards achievement of the goals stipulated by the current (or original) owners of those resources.

The question of stewardship arises naturally whenever any group shares a mutual dependence on a common set of resources. Generally speaking, a **commons** is any resource to which members of some group share access. Typical examples include natural commons such as fisheries, lakes, forests, or common grazing land, as well as constructed commons such as irrigation systems. Individuals may extract resources from a commons for their own private use, and if too many extract too much in too short a time, the commons may be degraded or destroyed. This "**tragedy of the commons**" (Hardin 1968) is especially likely if it remains an "open access" commons, which means that anyone can draw on these resources. This tragic outcome can be avoided only if someone takes responsibility for insuring the replenishment of that resource and/or maintaining the infrastructure needed to exploit those resources. The question is who will pay the costs for doing so?

Hardin concluded that there were only two possible answers: either (1) the commons should be regulated or directly managed by a central authority assigned the task of acting as its steward, or (2) the commons should be divided into separate parcels of private property, since the owner of a parcel can reasonably be expected to look after it with some care. In *Governing the Commons* (1990) and many other publications, Ostrom studied a third alternative, using examples from countries throughout the world to demonstrate how local communities dependent on continued access to specific natural resources can, if the right set of circumstances are in place, work together to craft, monitor, enforce, and revise rules limiting their own behavior, and thereby manage to keep those resources available for long periods of time. These rules specify how many and what kinds of resources can be extracted, and by whom, and when, as well as requiring contributions to collective efforts to maintain access to those resources. Through their collective action they can jointly construct and reinforce the conditions needed to sustain these rule systems. In effect, by transforming a common resource into common property, a group acts as their own stewards.

From her observation of the many ways in which diverse efforts succeeded or failed, Ostrom identified eight "**design principles**" (detailed below), which denote those characteristics of the ways in which the members of a group manage their common property so as to made it sustainable. In short, these design principles specify conditions under which resource users act as their own stewards. If, as I claim, common property plays a significant role in healthcare delivery, then perhaps a similar list of principles might point the way towards a more sustainable future path for this critical sector of our national economy.

With regard to U.S. health care, sustainability concerns are usually expressed in the form of doubts that long-term trends towards ever-increasing levels of health care spending might, at some point, become so high as to undermine future economic growth. An especially powerful expression of this concern is a Donald Berwick's 2009 plenary address to the Institute for Healthcare Improvement (http://www.ihi.org), which by a strange coincidence was delivered on the same day that Ostrom delivered her Nobel address in Stockholm.

Berwick (2009) stressed his deep concern that the ever-increasing proportion of the U.S. economy that is being devoted to health care would have strongly negative effects on other sectors of the economy and public services, especially education. He fear that this was by no means a sustainable process. Referring to the regional variation in costs and utilization documented in the *Dartmouth Atlas*, Berwick suggested that leaders in those regions which experience higher than average quality of care for lower than average cost must be doing something right, and that Ostrom's design principles might help us understand the reasons for their success. He identified a few of these "positive deviants" and encouraged further study of the reasons for their success. In sum, Berwick encouraged his listeners to

think about the regional health care system itself as a kind of commons, one that has been managed in very different ways, and with very different results, in different parts of our diverse country.

This analogy may initially sound compelling, but further analysis is needed to make this more than a rhetorical device. The complexities of health care can seem overwhelming, and I have found it useful to think of the system of health care delivery as a particular kind of commons, namely, a “constructed semi-commons.”

In an important contribution to the literature on intellectual property law, Madison et al. (2010:659) define a “constructed cultural commons” as “environments for developing and distributing cultural and scientific knowledge through institutions that support pooling and sharing that knowledge in a managed way.” Clearly, health care involves the application of cultural and scientific knowledge in ways that often involve pooling and sharing of that knowledge. Even in Ostrom’s analysis, there are important differences between an irrigation system, in which maintenance of a constructed infrastructure plays a critical role, and more naturally replenished systems, like common grasslands. In either setting overuse can occur in the absence of effective limits on appropriation, but in the irrigation example farmers also need to concern themselves with their respective contributions towards maintenance activities. Similarly, Madison et al. (2010:659) specify that in a constructed commons “These environments are designed and managed with limitations tailored to the character of those resources and the communities involved rather than left to evolve via market transactions grounded solely in traditional proprietary rights.”

For the concept of a semicommons, they and I draw upon Henry Smith (2000: 131-132):

> In a semicommons, a resource is owned and used in common for one major purpose, but, with respect to some other major purpose, individual economic units—individuals, families, or firms—have property rights to separate pieces of the commons. Most property mixes elements of common and private ownership, but one or the other dominates. A person has private rights to the moving spot of the highway that her vehicle occupies, but a highway is considered to be a ‘‘commons’’ because that is its more significant aspect. Similarly, a parcel subject to an easement for emergency services is considered to be ‘‘private.’’ In what I am calling a semicommons, both common and private uses are important and impact significantly on each other.

Since hospital emergency departments are required to accept all patients, at least for initial stabilization, they can be considered a kind of easement on the private property of that hospital that is open to general use. More broadly, a complex mixture of private, public, and shared property permeates the system of health care, making it at least plausible that it might be understood as a semicommons.

Smith (2000:138-139) goes on to argue that a version of Hardin’s tragedy can occur in these settings, along the following lines:

> In semicommon ownership, each individual owns a piece of the commons for one purpose, but the pieces are treated as a common resource for another purpose. Moreover, the use of one of these pieces for individual purposes (what I will call the ‘‘private-use purpose’’) affects its value as a common resource (the ‘‘common-use purpose’’), and, conversely, the use of the pieces as a commons in the common-use purpose affects their value as individual property. Under such a regime, individuals have

> an incentive not only to overuse the commons but also to spread that use (in particular, its harmful effects) to others' pieces of the commons.

Exactly this kind of cost-shifting is a fundamental component of the fragmented system of compensation that finances health care in the United States. This complication is incorporated into my application of the findings of Ostrom's research on resource commons to the delivery of health care. As will be explained below, a few other modifications are also necessary to complete the connection that Beck used to challenge and inspire his audience.

Another complication is that a constructed commons can involve resources simultaneously operating at different levels of aggregation. I have found it useful to distinguish between health semicommons at the micro and macro levels.

Any joint venture program for medical treatment, quality improvement, or health promotion can be interpreted as a micro-level constructed semicommons, or **micro-commons** for short. In the health literature, a more familiar term for complex systems of treatment would be clinical micro-systems (Nelson et al., 2007, 2008). Quality improvement programs are typically focused on making specific improvements to these clinical processes, and a vibrant community of consultants helps design, implement, and evaluate such programs. I use the term micro-commons to include both of these as well as the many campaigns for promotion of individual and population health that play such a prominent role in the field of public health. Any serious observer of healthcare systems quickly becomes overwhelmed by the vast number of such programs in any local community, and by their often transitory nature. Many of the programs initially inspired by external funding opportunities close down shortly after the funding runs out, but other programs remain in operation for long periods of time.

Berwick's speech focused on regional systems of health care delivery, as well as their implications for the national economy. This idea of a regional scale **health commons** (encompassing all of the physical, financial, human, and social capital resources relevant to the delivery of health care and/or the promotion of population health in a geographic region) is a much more abstract concept than a micro-commons comprised of specific collaborative projects.

So numerous and diverse are these joint ventures at a micro-level that it can be difficult to appreciate their fundamental importance. This connection can best be seen by realizing that a regional health commons, that is, the system of healthcare delivery as a whole, is an aggregation of all of the locally-relevant micro-commons in operation at that time, as well as all related forms of private property or public programs related to the promotion of health and/or the delivery of medical care. In sum, the healthcare sector of the local economy can be seen as a macro-level semicommons constructed from networks of micro-commons and other forms of property. Such complexity is difficult for anyone to comprehend in its entirety, but then so is any sector of the political economy.

Based on the analysis reported below, I conclude that the design principles identified by Ostrom fit conditions of a micro-commons directly, with only minor modifications, but that more extensive modification is needed to support effective stewardship at a regional level. More importantly, going through this process of investigation helps re-focus our understanding of the underlying nature of health care, to see it not only as a highly regulated yet still very competitive marketplace but also as a complex nexus of mutually interacting experiments in collective action built for diverse purposes and operating across multiple scales of aggregation.

2. Who's Responsible for Managing a Commons?

To explore the relevance of this analogy between resource commons and health care, we first need to specify the meaning of a few key technical terms and phrases. The first column of Table 1 summarizes concepts needed to understand the operation of a resource commons, and the remaining two columns show how each of these terms can be interpreted in the contexts of the two levels of health commons under investigation in this paper.

A commons typically consists of one or both of two kinds of goods: (1) **public goods**, for which one person's enjoyment of that good does not preclude others from also enjoying it, and (2) **common pool resources**, for which consumption by one makes that particular resource unit unavailable to others. As noted above, in a semicommons some aspects of public goods or common pool resources can also be used as private goods for other purposes. A common resource can be managed under different forms of property rights, but of special importance for this analysis is **common property**, that is, an institutional arrangement though which a specific group of individuals shares the responsibility for jointly producing, consuming and/or managing shared resources.

Commons occur in many different forms, and are familiar to people from all cultures. Difficulties grounded in the ubiquitous temptation to free-ride on the contributions of others towards the production of public goods is universally recognized, and common pool resource is a technical term for something that happens every day, whenever fish are caught, firewood collected, or farmers draw upon an irrigation system to water their crops. Behind this mundane façade, however, lie subtle dilemmas of collective action. When a particular resource unit (say, a fish caught in a lake) is extracted from a pool of resources (namely, the population of fish swimming in that lake), that fish becomes a unit of private property, no longer part of the commonly available pool of resources from which it was drawn. In this way, the concept of a semicommons connects public, private, and common property in a uniquely intimate way.

Two fundamental processes need to be distinguished in any commons: **appropriation** (extraction of a resource unit from a common pool) and **provision** (the process of arranging for the production of public goods, the replenishment of a common resource, or the construction and maintenance of infrastructure used in either process). For many cases studied by Ostrom, both appropriation and provision are carried out by the same group of resource users, but this is not the case in general. Also, for some cases the resource pool replenishes itself automatically, as in fisheries that are not being over-fished, while others are constructed by human action and must be maintained, as in an irrigation system, or in any form of health semicommons.

The second column in Table 1 summarizes the ways in which each of the terms or processes introduced in the preceding section can be connected to its appropriate analogue in a health micro-commons, that is, a program for clinical care or quality improvement or a campaign for health promotion.

An episode of care serves as the resource unit that a beneficiary appropriates from the general pool of available resources or services in that program or campaign. Typically, participating providers (either as individual professionals or as agents for corporate entities) are deeply involved in rule-making, having signed contracts or made commitments in some other form, to contribute resources or services to the program, under specified conditions.

The program definition will restrict the purposes for which these services can be delivered, and set criteria on those who are eligible to receive these benefits. The services delivered to any one beneficiary are best conceptualized as private goods, and the program as a whole may contribute to the public welfare, but the resources that define the program constitute a form of common property. Participating providers (and funders) jointly develop, operate, and maintain the necessary resources, and make decisions regarding all of these activities according to collective decision rules, whether these rules are stated formally or followed in a more informal manner.

Most programs are, in addition, subject to regulation by local, state, and national authorities, and they may also be subject to the scrutiny of private or voluntary organizations that certify a program's quality. Programs may receive financing from public, professional, or philanthropic agencies, which will, typically, impose additional restrictions on the program in terms of what services their funds can and cannot support, and who can benefit from these services.

Financial viability is the most logical interpretation of the concept of sustainability in this setting. For a program dependent on funding from external sources, its long-term sustainability is always in doubt. Even successful programs may run into difficulties, either because of limited resources or the intrinsic nature of the problem that program was designed to address. For example, a program to improve the patient experience during end-of-life care can be assured that there will always be new customers for its services. Even those diseases that seem to have been completely eradicated may, in extreme circumstances, reappear. Concerns about the sustainability of a health micro-commons thus have more of a sinister connotation than is the case for natural resources.

The third column of Table 1 applies these same concepts to a regional health commons. As described above, this macro-level semicommons encompasses many different programs of care or health promotion that are available only to defined subpopulations of the community as a whole. Comparable levels of complexity can be found in some natural resource commons, such as forests, which contain a wide variety of resources for food collection, firewood, hunting, grazing, and water use, each of which may be available only to certain groups of users.

Table 1 interprets the resource unit in a regional health commons as consisting of all programs devoted to care for some definable segment of the population, based on age, gender, insurance coverage, or health condition. In this formulation, resources devoted to the Medicare population, for example, are not available for use by those in other segments of the population. This type of distinction is common for analyses of the U.S. health care system, given that one's form of insurance coverage limits the types of care one may receive.

Under this interpretation, the rules defining these recipient groups can be set by a wide array of actors, some internal to the region but many other external actors as well. Similarly, activities needed to build or maintain these resources would be completed by healthcare executives and educators, according to rules set down by government regulators and professional associations.

Berwick clearly articulated the analogue of Hardin's tragedy of commons in this setting, namely, that the healthcare sector as a whole would absorb so much of the nation's resources that other sectors of the economy would suffer by comparison. General classes of programs might be made more sustainable by implementing quality improvements and other changes intended to reach the Triple Aim, that is, to combine improved health outcomes and higher-quality care at lower per capita costs (Berwick et al., 2008). But this image also reveals the limitations of the Triple Aim as an overarching goal, because the

overall costs of healthcare might continue to rise. To sustain the healthcare system as a whole would require attention to questions of equity and the effects of health outcomes and healthcare costs on the overall productivity of the economy. But it is not at all clear who, if any one, can take on the responsibility of achieving this Quintuple Aim at a regional level, let alone for the nation as a whole.

In this setting it makes little sense to treat the entire population of health professionals in a given region as the governing unit. Analysis is much more tractable if some sort of management group represents the health professions as a whole, or, even better, if that groups acts to serve the common interests of the community as a whole. For the purposes of this paper, I consider such a group to be a "**stewardship team**," because a group which asserts its responsibility for overseeing the health commons as a whole has at least the potential of acting in a way that would effectively steward those resources, facilitating general enjoyment of better health in the context of a strong economy.

Few regions have a stewardship team in place, but that is not a disqualification in terms of commons theory. After all, many resource commons lack effective stewardship, which is why Hardin's tragedy of the commons resonates so well with so many readers. Many real-world commons do in fact end up being destroyed by inadequate stewardship. Berwick warned us that this same fate may befall the healthcare sector, and thus the nation as a whole.

To those readers who may be growing impatient with what might seem a mere flight of fancy, I wish to emphasize that, in any community, *the resources of a health commons are already being allocated to different uses, whether or not a stewardship team is in place*. The actions of all stakeholders interact in complex ways to allocate available resources to diverse uses. Financial resources are allocated whenever prices are set through negotiations among stakeholders, financial and physical resources whenever a patient undergoes a test recommended by a physician, human resources whenever employment decisions are made, and social capital is expended in any campaign to address obesity, smoking, or other public health concerns. Resource allocation takes the form of *stewardship* only when the people making these decisions take explicit account of their effects on the system as a whole, and make decisions intended to insure the continued availability of these resources.

Certain segments of the population may already have a smaller group of individuals or organizations looking out for their interests. This group may or may not exhibit the full range of stewardship functions, but there is at least the potential for their doing so. For example, an employer providing health care benefits to its employees may be primarily concerned about minimizing the costs of that coverage, or minimizing losses to productivity arising from absenteeism, or may, in some circumstances, be motivated to care more broadly for the overall health of their employees. And public health officials are motivated by both personal inclination and professional training to take actions that improve the overall state of population health. Exactly the same idea is embedded in the Accountable Care Organizations (ACOs) that play such an important role in the 2010 Affordable Care Act (ACA). ACOs are comprised of provider organizations that jointly contract with CMS or some other payer to deliver services to a defined segment of the population, under terms that allow the ACO's component organizations to benefit from any savings that may accrue from efficiency improvements for the delivery of a comparable level of care. Measuring quality of care and savings obtained compared to hypothetical levels of spending that would have been incurred in the absence of its establishment are inherently difficult to realize in practice (McClellan et al. 2010), but the basic idea is for the ACO to be a better steward of that group's health and health care.

Yet the increasingly common ACO structure falls far short of offering stewardship for the region as a whole, and it may seem a too technocratic or business-oriented solution to a fundamentally political problem (Pasquale 2012). A steward responsible only for one segment of the population may consider it appropriate to shift costs of their care onto some other segment of the population. Such behavior reproduces, albeit at a higher level of abstraction, the self-serving behavior of a herder putting more and more cattle to graze on a common grassland, until the grassland can no longer sustain those cattle. This cost-shifting is exactly the type of behavior that Henry Smith warned about in his analysis of semicommons.

In sum, I interpret **stewardship of a health commons** as making allocations of that region's physical, financial, human, and social resources in ways that can simultaneously work towards improved health for the population as a whole, higher quality health care, at an affordable level of cost, with equitable access to all segments of that community, and in ways that improve the region's economic productivity. A tall order, certainly, but very much in the spirit of Berwick's remarks.

3. Comparing Design Principles in Resource and Health Commons

At this point we return to pick up the central thread of Elinor Ostrom's research on natural resource commons. Her most influential contribution was the distilling of case details down into a set of eight "design principles" that were all found, in one form or another, in successful cases of long-enduring management regimes. Conversely, one or more of these design requirements were missing in cases of failed regimes. Ostrom did not claim that the people involved had consciously intended to satisfy these conditions, but instead that this list captures important properties of the underlying causal structure which determines success or failure.

The first wide column of Table 2 provides a paraphrase of Ostrom's design principles (Ostrom 1990, as revised by Cox et al. 2010), plus two additional implicit conditions (the reasons for which are discussed below). Note that Ostrom's principles apply not to the resource itself, but rather to the institutional arrangements through which that common resource is managed. Her research demonstrates that sustainable management of shared natural resources is most likely to be achieved if the members of the group "owning" that common property exhibit certain characteristics.

Ostrom (1990, 2005) emphasized that the design principles fit together in a configural manner, meaning that it may not be enough to simply count how many of them are satisfied in a given setting. Instead, analysts must understand the extent to which the resolution of one requirement reinforces or undermines the resolution of other requirements.

Taken together, the design principles for resource commons are most easily satisfied for a closely-knit community which is highly dependent on continued access to that resource and which happens to live in a remote area of the world with a relatively weak presence of market forces or governmental interference. In such situations, locally-understood boundaries between the resource pools used by neighboring groups emerge from a long process of competitive interactions among these groups, and these boundaries should reflect the prevailing balance of power between the respective communities. A minimal level of autonomy is conveyed by default, especially if their areas are remote from major population centers or vibrant markets. Monitoring outcomes should be easy for those who remain close to the action, especially if they are highly motivated to insure that none of their neighbors are cheating. Wide participation in collective decision-making should be easy to arrange in close-knit communities,

and social sanctions in such settings can be both powerful and finely nuanced. Traditional modes of dispute resolution tend to be especially effective in making sure that disputes are resolved in ways that reinforce community ties, by taking community values into account in resolving interpersonal disagreements. Long-lasting rules are likely to be effective, as long as local conditions do not change radically, and to have distributional consequences that are well-known and generally accepted as fair. Finally, nested enterprises will naturally emerge over time, as succeeding generations craft ways to deal with new problems.

Of course, not all of the cases studied by commons researchers match all of these characteristics, and examples of success in less than ideal circumstances demonstrates that it is possible for communities to find creative ways to satisfy the criteria encapsulated in the design principles. However, this exercise should make it clear why it is not possible to directly apply these principles to the very different setting of healthcare. In short, none of these highly supportive conditions is in place in the health sector of the U.S. political economy.

Instead, we have settings where any sense of shared community is undermined by the pervasive influence of government regulation and market competition. Even so, healthcare delivery systems include many, many instances of successful collective action, namely, the numerous joint ventures, or constructed semicommons, that constitute the micro-level foundation of those systems. Not all of these programs prove sustainable, but some last for significant periods of time. It is worth considering how well Ostrom's list of design principles fits the conditions found in health care settings.

The right-hand column of Table 2 offers interpretations of these principles in the context of a health program micro-commons. Program boundaries tend to be well-defined initially, but success often breeds a temptation to expand to cover other beneficiaries or other types of problems. Scaling up is rarely easy, and efforts to do so can undermine a program's initial success.

Success is rarely achieved unless all relevant care providers contributed the program's initial design and its implementation. However, if beneficiaries are not actively engaged in their own health care, a program's long-term effectiveness will be stunted. Levels of effectiveness will be very difficult to ascertain unless measurement techniques are incorporated into the program's design from the very beginning. It often proves especially important to include measures based on patient perceptions of the care they are receiving.

Individuals who participate in a health care joint venture need to be compensated in some way beyond the intrinsic benefits they may experience from doing good. Their contributions need to be recognized and respected by their employers, who should compensate them, in some way, for the time needed to contribute fully to this program. As is usually the case, sanctions for poor performance should combine material incentives and social pressures. Since professionals in this area, as well as many others, are routinely pressed for time, and since participants will be drawn from organizations with diverse missions and specializations, we should expect that disagreements will arise during the implementation of any healthcare-based joint venture. Opportunities for participants to fully air their concerns need to be made available, and some internal mechanisms put in place to resolve disputes internally whenever possible. The goal should be to resolve disputes without undue damage to the underlying relationship among the parties. Recourse to formal legal proceedings will always be an option, but this should be considered a last resort in especially difficult circumstances.

The design principles referring to recognized autonomy and nested enterprises are not at issue in this setting, since, as argued above, our current system of healthcare delivery has been built on the foundation of a shared appreciation of the merits of professional autonomy and public service. All of the many micro-commons in place in this system have been built by social or public entrepreneurs operating within private, public, and voluntary organizations, and new programs will continue to be developed. The missing link, to be discussed below, is the absence of any systematic means of coordination among these programs. In most communities, no one has been assigned the responsibility (or taken on the challenge) of identifying remaining gaps in coverage and taking the lead in filling those gaps with new programs, or of reconciling the ways in which some programs undermine the success of other programs. But that is a question best deferred until our later examination of stewardship of macro-level health commons for the region as a whole.

In my investigation of the relevance of Ostrom's design principles to health care, I concluded that there were at least two other critical factors needed for success in natural resource commons that Ostrom did not explicitly identify as such. Since these two factors tend to be especially difficult to accomplish in healthcare settings, their importance became easier to fully appreciate in this new setting.

These two implicit design principles require that (1) key members of the group have long-time horizons and care about the long-term sustainability of the common property and (2) the group includes leaders who have a sufficient moral authority to serve as conveners of their process of collective deliberation. Both of these conditions are nearly automatic in communities dependent on continued access to natural resources, but neither is easily satisfied in U.S. health care policy.

The first is a condition that could almost have been taken as a condition for selection of her cases, namely, that these communities were dependent on continued access to these resources. This dependence not only makes the resource pool a salient matter for group discussion, but it can also catalyze such discussion, in making it immediately obvious that all involved do share at least some interests in common.

Examination of the types of micro-commons populating the healthcare sector, however, demonstrate that just sharing some common interests is not enough. Too often the common interest amounts to a shared desire to satisfy the requirements set by a funding agency in order to receive financial or other kinds of support to build a new program. Once the initial funding runs out, this common interest may evaporate, and their attention moves on to new funding opportunities. Even if the initial program was successful, the donor's interest may wane, since so many public or philanthropic agencies have a strong incentive to help build new programs, but receive little recognition for continuing to support existing programs. As a consequence, too many collaboratives are focused on chasing new money, rather than insuring that successful programs be made sustainable.

The single most important step towards making a program sustainable is finding a secure source of funding. This can be done by obtaining solid commitments from the provider organizations, or, if the program is going to generate savings, making a commitment to pour any savings back into the program. For this kind of savings reinvestment to work, however, the parties would have to have defined their expectations for how costs would have risen in the absence of the program. Having regular meetings where emerging problems are discussed and new ideas explored would, again, deepen the sense that this ongoing collaboration remains salient for all involved.

Second, I'm convinced that Ostrom did not assign sufficient importance to the ready availability of legitimate leaders in her study communities. This point was made dramatically by Gutiérrez et al. (2011), who applied the design principles to a larger set of fishery cases and concluded that several combinations of subsets of the design principles sufficed to result in sustainability, if and only if provided each of these cases was also characterized by the presence of good leadership. Looking back at Lin's successful cases, it seems that leaders tended to emerge quite naturally from these close-knit communities.

Natural leaders do not so easily emerge within the social networks linking health care providers within a given region. Instead, each leader will tend to be drawn towards fulfilling the goals and mission of his or her home organization, and achieving those goals may require an unremitting attitude of competition against other provider organizations. Of course, participants in the types of joint ventures being studied here will face incentives to tamper down their competitive instincts, but those counter-incentives cannot be sufficiently effective in all circumstances. Thus, it is critical to that program leaders should have both personal and professional reasons for wanting this program to succeed, and finding the appropriate balance of inspiration and interest is by no means an easy task.

The availability of effective leadership for collective action cannot always be assumed, and much effort must be directed to the recruitment and training of leaders. Questions of leadership and long-term horizons turn out to be even more critical when we move to the level of stewardship of regional health commons in the next section.

4. Lessons for Regional Governance of Healthcare

The fragmented and very complex system of health care, health insurance, and public health in the United States has been built through the never-ending efforts of private and public entrepreneurs to build innovative medical treatments and coverage programs to meet the needs of identifiable segments of the population. Working alone or together, for-profit and not-for-profit organizations built its diverse components by responding to the many subsidies, tax breaks, and regulations devised by policy-makers to encourage quality improvements and other innovations. Government programs such as Medicare and Medicaid, and the operation of community clinics and veteran's hospitals are also part of this ever-evolving system.

There is no reason to presume that a system of health-related programs built up in this bottom-up fashion would, in the end, result in an integrated delivery system capable of achieving high value results. Instead, we should expect to see duplication of effort in some areas and a total lack of coverage of other concerns, many instances where separate programs operate at cross-purposes, and the lack of any coherent plan. What's missing from this system is even a minimally effective means of coordination.

Coordination can take many forms in different institutional settings. In competitive markets, price plays this role through a mostly automatic process of balancing supply and demand. Entrepreneurs seek out opportunities to invent new products or build new markets for products that potential consumers didn't even realize they wanted. In this way, missing markets are built up to fill in the gaps in the existing system, whenever doing so offers opportunities for profit. In governments or within firms coordination is a key responsibility of top executives. Efforts to regularize the system in order to achieve goals of equity, for example, can inspire regulations of many kinds. Over time, the system of regulations can become incredibly complex and multi-layered, as new regulations are required to fill in the gaps left

behind by earlier regulations. Bureaucratic complexity is often disparaged as unwieldy, but a comparable level of complexity is more often celebrated when found in competitive markets, which also tend to be incredibly complex and multi-layered. In this way, regulation can be seen as a way of filling in the gaps in governance due to missing institutions.

Debates on reform have tended to be highly polarized, with advocates on the left arguing for universal insurance coverage to ensure access to health care for all citizens while those on the right instead stress their desire to reduce regulation and increase the range of choice available to patients as consumers. Ironically, more effective consumer choice requires that price information become much more transparent, and hospitals, physicians, and other health care providers are unlikely to open up the black box of their payment system unless they are forced to do so in order to comply with new regulations. But ironies are not restricted to one side, since a substantial increase in health insurance coverage is likely to lead to significant increases in costs, which is unlikely to be sustainable without fundamental changes in the way health care is delivered.

Since markets and regulations are complexly interwoven into the fabric of U.S. health care, both price and regulatory forms of coordination occur concurrently, but their effects often work at cross-purposes. Simplistic calls to reform this system to fit the ideal templates of markets or centralized control are doomed to fail. What is needed instead is to find a way to draw on both price and regulatory mechanisms to improve the overall operation of the system.

Today's system emerged via primarily reactive processes, with providers reacting to incentives set by changing government programs, grant opportunities, and market pressures. I'm calling for local healthcare providers and other community leaders to adopt a more proactive attitude, to actively engage in shaping the regional manifestation of this policy sector in ways that better serve the public interest and, I would argue, their professional responsibilities. Health professionals need to assert ownership of the policy sector they and their predecessors have created, and work together (and with community leaders) to guide its future evolution towards a fairer and more sustainable outcome.

Governance is rarely a simple process, at any level, and the coordination problem in play in a regional health commons is deeply complex. Collaborations among stakeholder organizations have generated a dense network of programs, each of which relates to only some of the health care needs of defined segments of the population. As explained above, the proportion of the region's resources that are devoted to care for that population segment can be seen as having been extracted from the system as a whole. Somebody needs to look at the system as a whole, to make explicit tradeoffs among desirable ends. Without this kind of leadership, one should expect a pattern of cost-shifting between population segments, and more dramatically, direct conflicts of interest between stakeholders. Who can act as stewards of the system as a whole?

Health care is an atypical policy area lacking an obvious center of authority. Public health officials are trained to think in community-wide terms, but they rarely have direct influence over the actual delivery of health care. Provider organizations naturally focus on achieving their own corporate missions, and collaborations involving participants from different stakeholder groups can easily degenerate into mutual recriminations.

The health care sector is replete with misunderstandings and stereotypes of people in other professions. Even organizations in the same line of business may see themselves as having quite different missions, with the for-profit vs. nonprofit distinction being the most familiar. Regulators concerned with the

enforcement of anti-trust laws grow suspicious whenever health care providers get together to talk, and members of the public have good reasons to be wary of back-channel communications among business leaders. My experience is that participants in multi-stakeholder collaborations become quite skittish when they feel they might be skirting the boundaries of ant-trust laws, which makes them overly reluctant to engage in activities that might otherwise prove to be non-problematic.

Major challenges arise with regard to measurement and data-sharing. Each organization or system has its own internal accounting rules, and legal concerns with privacy greatly complicate data-sharing. But without good measures of the comparative effectiveness of different programs, any effort to prioritize them is unlikely to be well-grounded. Even worse, it is often difficult to know what any one program has accomplished. Practical realization of any collaborative vision requires routine access to good data on the effectiveness of the many programs underway in that region, especially those that have been assigned the highest priority by the regional stewardship team. A substantial level of shared data access is a prerequisite to the kind of sustainable stewardship advocated here.

Talking about cooperation is one thing, but pooling money together brings a whole new level of realism. One of the pillars of the ACO concept is that savings generated by innovative programs should be reinvested in order to continue these successful programs and, if possible, to finance other programs. For health care collaboratives to take this next step, they need to be able to arrive at some consensus on how savings from these programs are to be reallocated among the parties if needed, but ideally fully reinvested in the collective project. They need to develop procedures to collect relevant data on a routine basis, and to disseminate that data widely and transparently. They need to face the implications directly, but to also allow for some flexibility for their colleagues who face stringent constraints from other sources (such as leaders of local organizations that are also part of cross-regional conglomerates).

Also, it is inherently difficult for anyone to understand the complexity of a regional health care system composed of multiple micro-commons, especially one in which the formation of innovative collaborative arrangements is strongly encouraged. My colleagues in ReThink Health Dynamics (http://rippelfoundation.org/rethink-health/dynamics/) have developed a systems dynamic model that can be fine-tuned with data on a specific region, and that can help community leaders develop a better understanding of how their system might react to alternative combinations of new programs. Even this incomplete representation may be enough for them to move forward, but only if they can agree to regularly monitor important aspects of how their system is changing over time.

Ostrom's research demonstrates that the most difficult challenges may begin after agreements have been made and collective decision procedures put in place. For then the parties will need to decide, on their own, whether or not they are willing to abide by those rules, and their decision may depend on how likely they are to be observed if they choose otherwise, and what might happen to them if they are caught out. In small communities, social shaming is a powerful form of graduated sanctions, and to some extent the same types of sanctions may be available to corporate executives in a given region, especially in communities where elite business leaders tend to travel in relatively restricted social circles. Relying on formal sanctioning mechanisms is costly and tends to induce lingering resentment, and so social shaming may be the primary sanctioning mechanism available to aspiring stewards of regional health care systems.

In sum, many obstacles lie in the way of successful achievement of a sustainable system of shared stewardship of a regional health care commons: boundaries are ambiguous, goals may be both amorphous and overly ambitious, and stakeholders are diverse and lacking in mutual understanding,

driven by competitive pressures towards aggressive expansion rather than open deliberations, hounded by a lack of shared data frameworks, show little concern for how other stakeholders interpret their own actions, and fear the suspicion of regulators and the public as a whole whenever they do start to work together.

On the plus side, facing so many challenges at once means that actions taken to resolve any one of these concerns may, at the same time, address some of the other concerns as well. For example, enforcing sanctions in a graduated fashion can help build a sense of trust, on the part of the sanctioned party, that the others are not interested in leading them to ruin. This increase in trust can in turn make it easier to build the habits of open discussion needed if the group is to arrive at policy responses best able to address their most difficult challenges. Many response paths need to be pursued simultaneously, but judicious emphasis on those responses that have positive impacts in multiple areas can be especially effective. The design principles can help identify important points of concern, but, by themselves, they cannot constitute a detailed plan of action.

5. Understanding the Grand Junction Path

Given this plethora of daunting challenges, Berwick's vision takes on a new depth. He drew on specific examples of communities whose leaders have found a way to overcome each and every one of these challenges. He pointed specifically to Grand Junction, Colorado, as a place where an informal leadership team has, for several decades now, been engaged in effective stewardship of their local health care resources, and have been rewarded by building a system that delivers an unusually high quality of care to its community at an unusually low cost. He recommended that we learn from their experience, and I was fortunate to be able to follow his advice, through a series of interviews with local leaders and participation in a few sessions of the Mesa County Health Leadership Consortium. In this section I summarize the key elements that lay behind the success of their efforts, as I understand them, and use this as a point of departure for consideration of the general principles that lay behind their record of success (For additional details on Grand Junction, see especially Nichols et al. 2009; other important interpretations include Bodenheimer and West 2010, Okie 2010, Thorton et al. 2010).

The case of Grand Junction, Colorado, illustrates the minimal requirements for effective stewardship of a regional health commons. Over a span of decades, local leaders built habits of routine consultation and collaboration that enabled them to identify programs of particular importance to the community as a whole and to make those programs a high priority by locating the additional sources of funding needed to make them sustainable over the long haul. Their discussions also identify remaining gaps in the system of care and enabling them to begin the process of devising and implementing programs that might fill those gaps.

Each of Ostrom's design principles can be illustrated with specific programs in place in this community (McGinnis and Brink, 2012). Although this could not have been their conscious intention, it is enlightening to re-examine the historical record in light of these requirements for sustained collective action. After laying out these details, I step back to focus on the overall strategy that lay behind their long-term success. This strategy too may not have been consciously conceptualized as such, but this underlying strategy stands as the most compelling lesson from this analysis.

1. Boundaries: In the 1980s, the Mesa County Professional Independent Physicians Association (**MCPIPA**) and the Rocky Mountain Health Plan (**RMHP**, known locally as Rocky) built a

financially based commons from which equal reimbursements are paid for healthcare services regardless of the funding source (private insurance, commercial insurance and Medicare/Medicaid). The details of this arrangement have changed over the years, but this basic structure remained in place to serve as a solid basis for broader stewardship activities.

2. Autonomy: When the Federal Trade Commission and the Department of Justice was considering initiating an unfair trade action against MCPIPA in the 1990s, a local physician sought the assistance of the AMA, which helped convince the FTC to instead sign a consent decree that enabled MCPIPA to continue to operate as before. Even so, corporate leaders scrupulously avoid any mention of price when they compare notes on their own plans or programs.

3. Decades of experience with informal discussions involving a wide range of stakeholders was formalized (in a limited manner) with the establishment of the Mesa County Health Leadership Consortium (**MCHLC**) in 2010, with support from the Institute for Health Improvement. Members were drawn from RMHP, MCPIPA, both local hospitals, Mesa County Public Health, the hospice, the mental health facility, the health information exchange, and others. This group of high-level executives meets monthly to discuss issues and opportunities that affect Mesa County. Each member, regardless of the size of his or her respective organization, is allotted one vote, but most decisions are made by consensus.

4. Congruence: Collective agreements have been implemented in a flexible way that takes into account potentially inequitable effects. For example, when the Quality Health Network, a common system of electronic records, was established in the early 2000s, physicians near retirement were exempted from this requirement, since they would not have been able to achieve any financial return for their investment in an EMR system. Eventually, all active physicians were using this system.

5. Monitoring: Physicians in MCPIPA participate in a rigorous peer evaluation process with support from the Rocky Mountain Health Plan. Each physician receives a statement showing how their testing and treatment practices match up against other physicians in their practice area. MCPIPA also runs voluntary productivity improvement programs that focus on patients with diabetes, heart disease, asthma and other chronic illness. On a quarterly basis MCPIPA sends a check to those who participated, and doctors who do not participate are informed about the percentage of their peers who are participating, the results of the programs, and the amount of income they are forfeiting by not being involved.

6. Graduated Sanctioning: Interview subjects included several examples of gentle forms of mentoring that encourage the adoption of locally-accepted forms of behavior, beginning with "taking someone out for coffee" to help bring their views and actions back in line with community norms and expectations and sometimes ending in withholding patient referrals.

7. Dispute Resolution: MCHLC members use informal means to resolve disputes before they become big problems, by maintaining their long-standing practice of open communication between among all parties.

8. Nested Enterprises: Members of the MCHLC jointly supported the establishment of Marillac Clinic (for uninsured patients), Hilltop Community Center (which runs the long-standing B4 Babies & Beyond program which delivers pre-natal care to all pregnant women, despite their

insurance status), and other enterprises to deal with specific issues. This increases the complexity of the system but also gets more people involved in collective stewardship.

Some commentators have discounted the general relevance of this accomplishment by concluding that the level of collaboration, or commons-like behavior, could only have occurred in a low population area that is geographically isolated from large urban areas. Such a setting naturally generates a level of concern for long-term consequences, helping build habits of effective stewardship. But their isolation was far from complete -- when needed, community leaders reached outside of this boundary to call upon other organizations, including a national professional association, and state and national elected and appointed official to increase the level of recognition for the community's autonomy. They have been especially fortunate in having a succession of individual leaders (from different stakeholder groups) willing and able to bring leading members of the community together around joint actions.

In our research we concluded that the critical key to the success of Grand Junction lies not in its geographic isolation or its specific reimbursement schemes or anything to do with the details of its organizational structure. Instead, the critical factor is the way in which leaders interact with each other. In many settings, both formal and informal, they communicate with each other on a regular basis, and they do so in a way that builds mutual trust and respect. Leaders share many social ties outside of their professional careers, and these informal social networks are critical in sustaining a sense of community. But it's more than just social connections. Collectively they have taken ownership of their regional system of health care delivery, and defended their autonomy against threats from outside the region. And they have established regular procedures for sharing information and rewarding those physicians who perform best, according to the standards they have jointly set.

Since there is no reason to think that the Grand Junction experience could be replicated elsewhere, these specific connections may be of limited use to others. Nor is there a clear logical basis for the entire set of connections as a whole, since some conflate effects operating at the micro and macro level.

What follows is my understanding of the general outline of the Grand Junction path towards shared but informal stewardship of a regional health commons. As in most communities, leaders from different stakeholder organizations worked to establish and operate targeted programs. As is generally the case, none of these programs were easy to sustain, given the vagaries of external funding. One of the striking regularities in the Grand Junction region is that a few especially important programs have been sustained over longer periods of time, and that this has been done by leaders who have arranged for other more secure sources of funding, especially from within the community.

They did so by selecting a few critical targets (such as sufficiency of primary care providers, the B4 Babies & Beyond pre-natal care for all, a pool to guarantee equal reimbursement for patients from all insurance groups, plus increments to reward exceptional performance), and then establishing programs that are directed at those key goals. Over time they kept coming up with new ways to fund those programs, rather than allowing themselves to be diverted to pursuing the flavor of the month programs sponsored by external funders or government agencies. In this way they took ownership of their key programs, and began to build them into a sustainable package.

Over a long period of time, a series of steps were taken that resulted, eventually, in a knitting together of these programs into a broader system of regional health care governance. Even today, members of the MCHLC continue to explore gaps that remain in what is seen as a national leader in quality and cost

control. Recent initiatives have focused on enduring challenges of public health promotion, where this region does not score quite as impressively as on measures of low-cost and high-quality health care.

I am fortunate to have been allowed to sit in on some of these conversations, which I must say, as a political scientist, I have found to be operating at a high level of political sophistication. The CEOs of all major stakeholder organizations meet once a month at a regularly scheduled time, and attendance is remarkably high. Participants openly share their concerns about the potential downside of seemingly attractive opportunities for external funding and carefully evaluate the potential effects of any proposed new program on the interests of local stakeholders, even if the representative of that organization happened to miss that particular meeting.

In summary, the Grand Junction leadership group has taken ownership not only of specific programs but also of the regional system as a whole, and over time built these programs into a sustainable but ever-changing package. In doing so, they have demonstrated, by example, that it is possible to engage in transformational change by incremental steps, if those steps are made in a strategic way that contributes towards moving in the right direction.

The key step was self-identification of a team of leaders, and their ability to work effectively as a team. This required that they build and maintain a minimal level of trust in each other, and establish norms of open and frank discussions, making sure that all points of view are aired and that any fairness concerns are evaluated honestly. Their discussions focus on meaningful tasks that can only be accomplished through joint action. It's a system that works well, even though their corporate interests are never completely aligned. It's also not a perfect system, given their continuing challenges in population health. But, as an informal process of stewardship, it works remarkably well.

6. A Strategy for Shared Stewardship of a Health Commons

One final observation about Grand Junction takes us back to the beginning of my argument. Their regional health care system is still fragmented, but it appears to have the right kind and level of fragmentation. The center holds, because all parties have come to a common understanding of their shared context and are committed to sustaining channels for productive communication. This level of commitment cannot be accomplished by fiat but must instead emerge through a long process of constructive engagement.

Beyond the regular monthly meetings of the MCHLC, there is very little that is formal in their process of coordination. Other paths towards shared stewardship of a regional health commons lead to more formally integrated systems, such as Kaiser Permanente (McCarthy and Mueller 2009) or Geisinger Health (McCarthy, Mueller, and Wrenn, 2009), in which key stakeholders are integrated into a single organizational structure.

Other paths can come from the ground up, as is happening in South Carolina under guidance of ReThink Health teams (http://rippelfoundation.org/rethink-health/action/regions/columbia-south-carolina/). In Atlanta, a community collaborative has met to prepare a community playbook (ARCHI 2013) around which each stakeholder organization could make their own contributions via their own future plans, as well as new joint ventures. In Whatcom County, Washington, community leaders have begun building a formal structure of institutions that they describe as an "accountable care community" in such places as Whatcom County, Washington (Whatcom Alliance for Health Advancement 2011-12), and Akron, Ohio

(Austen BioInnovation Institute, 2012). This ACC concept extends the logic of an ACO to cover all members of a community, and as a consequence requires the participants to establish a governance structure with clear lines of authority. These new organizations will have the authority to set regional priorities, calculate savings, and reinvest these savings into new programs, including in the area of health promotion campaigns.

Cantor et al. (2013) briefly surveys some exciting new instruments for capturing the savings generated by innovative programs in health care or health promotion. In addition to ACOs and ACCs, they discuss health impact bonds (a market-based instrument), wellness trusts (funded by required taxes on local stakeholders), and new regulatory requirements that tax-exempt health care facilities direct much of their community benefit expenditures towards prevention and other health promotion activities. These are all examples of the endless creativity in the health care sector which continues to contribute to the constructive kind of fragmentation introduced in the very first paragraph of this paper.

A similar combination of fragmentation and coordination can be found in the area of clinical care. Since it is common for individual patients to see many different specialists in the course of treatment for a single health problem, attention must be paid to helping coordinate the many caregivers dealing with any one patient. Care coordination has become a standard refrain in quality improvement circles. Coordinated care is easier to arrange in the context of a patient-centered medical home, that is, an organization of primary care providers and specialists that operate together as a clinical team. This kind of team-building does not entirely break down the barriers between the mindsets and cultures of different professions, but it helps them operate more effectively as a team.

Shared stewardship of a regional health commons is coordinated care writ large. A regional stewardship team coordinates, at a very general level, all forms of health care delivered to all population segments of that community. Their efforts will have to be funded in some way, and capturing savings from previous programs seems the most effective way of doing that in a sustainable fashion. How they do so will differ across regions, with those in more formally integrated systems having access to a specially designated common fund, while those in other regions must rely on other stakeholders to invest in programs well-suited to the overall plan agreed upon by that team (given the requisite level of monitoring, sanctioning, and dispute resolution).

The potential variety of feasible paths to shared stewardship of regional health commons is far too wide to cover in this paper. The case of Grand Junction shows what can be done with only a minimal institutional infrastructure, but leaders in some regions may decide to build new public organizations to shape the allocation of their health and health care resources. My guess is that most regions' leaders will be comfortable adopting modes of collaboration a bit formal than that found in Grand Junction, but well short of a full-fledged governing body or a fully integrated delivery system.

Currently, too many communities remain stuck on a less promising path, with their many programs remaining highly dependent on external sources of funding. For much of the country, all else has been swamped by their immediate need to scramble to adapt as best they can to the many uncertainties implicit in the ongoing implementation of the ACA.

Ostrom's research on the sources and benefits of institutional diversity can help guide comparative exploration of these paths. Each successful case will succeed through the operation of a unique set of decision processes, but a set of general principles should be able to be inferred from careful observation

of diverse cases, to identify the critical requirements that must be satisfied, albeit in very different ways in diverse settings.

Analogues of the design principles, by themselves, are an insufficient basis for success. Characteristics of participating organizations act as enabling factors, as do factors at the levels of individuals and the state and national context. Since the design principles relate to forms of common property, they are not directly relevant for factors at the level of individual leaders or specific organizations, or to the state or national context. Factors at the individual or at the state and national levels serve as enabling conditions that facilitate the right kind of cooperation among shared owners of common property in health commons.

For any system of shared stewardship to work, the interests of the participating organizations need to be aligned, to at least some extent, with the good of the region as a whole. There will remain plenty of scope for competing and even conflicting interests over specific issues, but there has to be at least a minimal level of willingness to seriously consider the collective consequences of decisions taken by any organization acting alone, and, as a consequence, a willingness to discuss important problems and decisions with other members of the consortium.

In our work with several communities we have found that success requires finding sponsors and a neutral convener with locally-recognized moral authority. These may be part of the current health care system, or outside of it. Retired business or community leaders might be especially effective in playing this role, since they are more likely to have sufficient time to devote to this task. Nonprofit community service organizations may be obvious conveners, but since the problem at hand requires extensive coordination among business leaders, it is especially important to look to business leaders outside the health care sector. Major local employers are a promising source of regional leadership, because they have genuine interests in keeping the local economy vibrant.

Significant disputes will arise, and it is critical that resolutions are accomplished in a way that avoids leaving one or more parties feeling badly wronged or left out of the group. They should fully expect to experience conflicts and setbacks, and need to build a resilient process of collaboration that can weather these kinds of interruptions and reversals. There is no need to require all members of a stewardship team to adopt exactly the same set of visionary goals or economic interests; all that is required is that they can understand each other's points of view, and find a way to work together to more effectively manage the region's resources in ways that serve the broader values and interests of the community as a whole. Shared stewardship does not require a Disneyesque-level of sweetness and light, but its operation does require at least a minimal level of understanding and appreciation of other points of view.

The way forward is a multi-faceted task, requiring that inter-related criteria be pursued simultaneously or along parallel tracks. The scope of these relevant dimensions is well-demarcated by the design principles themselves. As Ostrom (2009b) concludes, the design principles can serve as a guide to the types of questions that members of a group should ask themselves once they recognize that their future paths are inextricably intertwined.

As a guide to those seeking to realize the benefits of shared stewardship of their own regional health commons, here is a list of ten declarative statements organized around themes broadly inspired by (but not limited to) the factors highlighted in Ostrom's design principles.

1. **Find a Trusted Convener. Identify a widely respected individual, group, or organization to convene and sponsor general meetings on public health and health care.**
2. **Think Systemically. Identify leaders who share a deep understanding of the overall dynamics of their regional system, and who respect the defining values of the local community.**
3. **Build Momentum. Establish a forum for regular meetings of officials from key stakeholder groups to discuss plans and concerns, and focus discussions on meaningful and interdependent tasks.**
4. **Establish Shared Priorities. Collectively assign the highest priority to those locally-based programs that can best contribute towards effective improvements in health or health care for the community as a whole, and arrange secure funding for these high-priority programs.**
5. **Align Programs to Community Values. Encourage local stakeholders to consider community-wide effects when setting their own corporate missions and policies.**
6. **Gather and Share Information. Systematically collect data for high-priority programs and comparative performance measures, and share this information widely.**
7. **Hold Each Other Accountable. Establish common expectations about how violations of agreements will be sanctioned, and adjust the levels of sanctions so that stakeholders who act protectively are warned but not excluded from subsequent discussions.**
8. **Recognize Inequities. Pay careful attention to any concerns that the benefits and costs of these high priority programs are distributed in an unbalanced or unfair way.**
9. **Remain Practical. Resolve disputes locally, if possible, and do so in ways that respect the vital interests of all stakeholders, avoid partisan entanglements, and leave minimal recriminations.**
10. **Nurture Innovation. Endeavor to make sure that all individual and joint actions contribute to the sustainability of a multi-level ecosystem of effective innovations and continuous learning.**

My analysis should give aspiring stewards of local health care resources a real sense of hope. After all, they have already established the kinds of common property systems that could, potentially, contribute towards the construction of a broader regional system of informal governance. All they need to learn is how to make each of these programs sustainable in the long run, and to connect them together (by filling in gaps in coverage of functions or population segments) in a more strategic manner focused on innovative programs with truly transformative potential.

Of course, it's not as simple as all that. Collaboration is hard work, and good intentions are not enough to insure successful outcomes (see Crosby and Bryson 2010). Much work remains to be done to craft specific programs needed to fully realize the transformative potential inherent in this commons approach to health care reform. My hope is that this vision of shared stewardship of a regional health commons, which is itself composed of a dazzling array of micro-commons programs built through successful collective action at smaller scales, can help galvanize efforts towards the transformation of the U.S. system of health care, one region at a time.

7. Looking to the ACA, and Beyond

ACA, the 2010 Patient Protection and Affordable Care Act, consists of a complex array of interrelated patches (Kaiser 2013) on what many view as an already over-complex system. From the perspective offered here, these reforms do not go far enough in several critical areas.

Specifically, provisions are made in the ACA for support of many innovative demonstration projects, but too little attention is paid to finding ways to ensure that local leaders are sufficiently committed to these programs to continue them once the federal funding runs out. ACOs and insurance companies are

required to provide additional information to regulators, but this does little if anything to make cost information more transparent for consumers. Easy access to this level of transparency is a pre-requisite for bringing to bear the power of the market.

Most importantly, little is done in terms of encouraging new institutions at a regional level. As discussed below, there is a requirement that hospitals must work with other community organizations when they prepare assessments of community needs and assets to justify their continued receipt of community benefit credits. But a long string of similar efforts by federal agencies to regularize health planning at a regional level has not been very successful, to put it politely (Shonick 1995, chapter 15), and there is little reason to expect dramatic improvement in this instance. Perhaps most disturbing is that ACOs are specifically set up to deal only with defined sub-populations, and thus far the few efforts to establish community wide accountable care communities (including those in Akron and the state of Washington discussed above) have not produced many tangible results.

This tension can be seen in two of the many provisions of the ACA, namely, those relating to the establishment of accountable care organizations (ACOs) and new requirements for the filing of community benefit assessments by nonprofit hospitals and other medical care facilities. The requirements for ACOs are expressed in elaborate detail, and each set of applicants is required to fit their proposed organization into one of a small number of templates. Once the ACA survived constitutional challenge in 2012, literally hundreds of local collaborations have applied for this status, ranging from simple contracts between two provider organizations to larger scale community-wide efforts. Some observers have expressed concern that ACOs have become something of a fad, one which threatens to repeat earlier disappointments from the HMO craze of a few decades past (Burns and Pauly 2012).

A less well-known provision of the ACA requires hospitals seeking community benefit designation to work collaboratively with community groups on a single community needs assessment, rather than the many reports previously filed separately. The idea behind this provision was to jump-start processes of conversation among health care providers, public health officials, and local community organizations. Additional conditions were, as usual, added later in the rule-making process (Rosenbaum 2013), but at a level of specificity that falls well short of ACO regulations. As such, this example falls clearly within the range of policy instruments consistent with the line of argument developed in this paper.

It is not enough to establish programs, like the state or federally managed insurance exchanges that increase consumer access to health insurance coverage. After all, once more people have gained access to the full array of health care available in today's healthcare marketplace, many of them are likely to be just as disappointed as the rest of us when it comes to the types of care they actually receive. Perhaps the most glaring discrepancy between customer wishes and actual health care concerns end-of-life care. Survey respondents overwhelmingly express their preference for dying peacefully in their own homes, and yet most of us will spend our last few hours in intensive care units or other clinical settings.

Citizen-consumers need to have better access to information about prices for treatments and about how well available treatment options are likely to affect their true interests. Programs of shared decision-making are directed at helping physicians solicit a fuller understanding of a patient's underlying preferences and thus more fully live up to their own professional ethics (Elywn et al, 2013), but such programs are unlikely to have a significant affect unless they are supported by broader changes in reimbursement mechanisms.

No one can claim that ACA makes the U.S. system of health care easier to understand, and I must confess that nothing in this paper would move us in that direction either. My proposal to strengthen the regional level components of our current health care system also falls well short of a systems-level change to a single-payer system. Unlike the ACA, which its many critics decry as a massive expansion of government intervention, my proposal is intended to encourage a more gentle form of governance, directed at the regional level and involving closer cooperation among leaders of public agencies, private firms, voluntary organizations, and the community as a whole. As suggested above, the Grand Junction model demonstrates that even a minimal level of coordination can suffice for effective stewardship.

Opportunities for increased levels of individual choice and market completion play essential roles in this proposed transformation, but not as ends in themselves. There is no way that the technical complexities and ethical subtleties of health care can ever match the ideal form of a perfectly competitive market guided to a social optimum as if by the operation of an invisible hand. More effective choice by individual patients and their families is definitely needed, but so are processes of more effective choice at the level of communities. Markets alone cannot accomplish the collaboration necessary for sustainable stewardship. Nor can government regulations require everyone to cooperate. The initiative remains, and should remain, at the local level.

Critics could reasonably question whether or not it may already be too late to realize the level of local autonomy envisioned here. National and state regulations have deeply influenced the historical development of health care procedures and institutions, and there is no way to reset the clock and start anew. In recent decades, programs such as Medicare and Medicaid have become important players in health care systems in all regions of the country, and there seems little if any prospect that these national and national-state level programs could be fully devolved to the regional level.

Medicare and Medicaid will leave insufficient room for true autonomy at the regional level only if CMS requires them to be implemented in a uniform fashion throughout the country. But that has not the case thus far. National administrators of the Medicaid program have to deal with the wide range of eligibility and reimbursement policies in place in the fifty states, and Medicare has a long history of supporting innovative forms of demonstration projects.

Markets can knit peoples together in ways that undermine local identities. Two cross-regional ties are especially noticeable in U.S. health care. First, pharmaceutical manufacturers enjoy patents protected by the national government, and advertise their products to consumers throughout the nation. Second, technological and regulatory changes in the health care economy have triggered successive rounds of consolidation, especially for major hospitals. Meanwhile, consolidation of insurance companies has also proceeded apace. As a consequence, in an increasing number of regions, several of the major players in health care are subsidiaries of national corporations or consortia, which can significantly lessen their commitment to any single community.

On the other hand, the recent proliferation of interest in the local food movements shows that substantial pressures for local connections remain effective. Private employers in non-health care industries can lead by example here, especially those corporations that offer health benefits to their employees. As health costs rise, private employers become more interested in finding ways to obtain better value for lower cost. This incentive has lead heads of national corporations to become involved in the kinds of community collaboration advocated here, in those communities where they have important facilities. For example, during a May 2012 conference on "Accelerating Change for Delivery of

High-Value Health Care" at Dartmouth, Jeffrey Immelt, CEO of General Electric, noted that his firm is actively involved in reforming health care "one city at a time."

Employers have a unique perspective on health care, since their primary concern is to insure that they have enough healthy workers for efficient production, and that their workplaces are located in communities that are attractive to potential workers and consumers of their products. Thus, local employers are uniquely poised to play critical roles in any future system of regional-based stewardship of health and health care.

However, it's not enough to engage only those employers large enough to be able to afford offering health insurance coverage to their workers. In an earlier era, when most people stayed at pretty much the same job throughout their career, it may have made sense for employers to offer health benefits as a way of both rewarding and retaining their valued employees. In today's more complex economy, where most of us will work in very different settings at different stages of our life, it makes less sense for private employers to continue to bear this burden. Instead, some way needs to make sure this burden is shared not only by local business leaders and government officials, but also by health care provider organizations, many of which are, as it turns out, increasingly important as employers of local residents.

Changing such a complex and well-entrenched system is never easy, but local stakeholders in health and health care do have the capacity to make many kinds of decisions that significantly impact the future development of their regional system of health care delivery. Shortages of primary care physicians can be addressed by focused recruitment programs and by encouraging increased responsibilities for nurse practitioners and other professionals. Decisions about the construction of new facilities can be shaped through discussions among the executives of hospitals, physician groups, insurance plans, and other stakeholders. Costs and quality of care can be significantly affected through the implementation of programs for quality improvement and through concerted efforts to improve the quality of communication across professional specializations. Use of shared decision-making procedures that encourage clinicians to actively engage their patients in deciding on levels and types of care can result in lower utilization and improved patient satisfaction. The location of parks, bike paths, food stores and other aspects of the local "built environment" can dramatically shape personal choices between healthy and unhealthy behavior. Finally, effective stewardship can become institutionalized through widespread adoption of the simple but powerful habit of routine consultation across stakeholder groups, as is evident in all of the many joint ventures or micro-commons related to health, health care, insurance, and public health. All this is within the control of local leaders and citizens, as they develop a common game plan for moving forward.

My argument suggests that national health policy could best be redirected towards the awarding of block grants to the types of regional collaboratives discussed above. Program administrators would have to allow for a diverse array of types of collaborations, and set up procedures that direct additional funds to those collaborations that involve a larger segment of the local health care economy. In order to encourage these collaboratives to pay attention to the long-term sustainability of their programs, the initial level of funding might be scheduled to be reduced over time, with the speed of decline slowed if the local collaborative manages to generate matching funds, especially if those funds amount to the reinvestment of savings generated by initial programs into later, more ambitious efforts to improve community health. Ultimately, sustainability of successful programs must become the responsibility of local implementers, who cannot remain dependent on continued access to external support.

Ironically, this is very much in the spirit of the ACO requirements, but with the focus shifted from a small number of acceptable templates to an attitude of letting each regional community establish the kind of stewardship team that works for them, in their local settings. Safeguards will need to be put in place to assure that federal funding is not used to shore up entrenched interests, but surely but this can be done without reproducing the currently dysfunctional fear that any multi-stakeholder discussions might be treated as anti-trust violations. Surely such discussions can be made more transparent, and can more fully engage local citizens in significant ways. After all, the basic idea is to find ways to encourage local leaders to take ownership of their own regional health commons.

An inspiring vision for system transformation needs to be articulated. This vision has to involve more than just the Triple Aim, which is a technocratic slogan for what remains at its heart a political problem. We need to engage citizens in expressing the kind of health care system they want for themselves and for their posterity. A truly inspiring vision would be needed to generate the wide and enthusiastic support needed to implement a multi-faceted strategy of initiatives ranging from individual behavior all the way up to the way national regulatory agencies interact with regional collaboratives.

On this very point, Ostrom's research suggests an inspiring lesson for aspiring stewards of health commons. In a paper directed towards a practical policy audience, Ostrom (2009c) argues that climate change is such a complex policy problem, involving as it does so many forms of negative and positive externalities operating at scales from individual households to the global level and all levels in between, that only a program of policies directed at all of these levels can, in the end, be an effective response.

Similarly, any truly effective transformation of a health care system requires that programs be designed and operated at multiple levels of aggregation, so as to internalize the effects of negative externalities within more encompassing interests while also capturing positive economies of scale. In an ideal world, patients should be able to access timely information, be diagnosed by primary care providers, and obtain specialized care at their homes or workplaces as much as possible. New technologies of communication and remote monitoring can make important contributions towards making such a system a reality, but nothing can replace a personal touch, and for many purposes a non-professional volunteer fits the bill. Nationalized economies can excel at building technological connections, but volunteers are more likely to be forthcoming if they see themselves as participating in a community-based effort, rather than being part of some corporate plan. In this and so many other ways, full community engagement can work wonders.

But community level collaboration is no panacea either. Here the focus should be on outcome measures, and not on detailed fulfillment of intrusive process requirements. Have local efforts resulted in significant savings? Have these savings been reinvested in high-quality programs of health promotion or improved quality of health care? If so, these efforts should be rewarded. If not, then more draconian forms of intervention may be necessary. But before we reach that point, surely it is worth exploring the possibilities of putting the fragmentation of U.S. health care to work in our favor, for a change.

In sum, I encourage both health care professionals and the public at large make more concerted efforts to understand the health care system as it is, to appreciate why it is so fragmented, and how this fragmentation can be turned to better purposes.

My argument calls for a return to earlier understandings of American democracy in which local self-rule played a more prominent role than it does today. In the compound republic designed by the authors of the U.S. Constitution over 220 years ago, the primary role of the federal government is to secure the

basic conditions that enable the effective exercise of self-governance at state and local levels (V. Ostrom 2008). From this perspective, a major goal of national government should be to nurture creative policy innovations at state or local levels, and to help diffuse successful innovations, without imposing their details on other regions. This has proven to be a difficult balance to maintain, in health as in many other policy sectors.

I conclude with one final justification for undertaking this daunting task of transforming our current system of health care delivery. Today, health policy serves as a political football in unrelenting and increasingly pointless games between competing partisans of the left and right. The kind of transformation advocated here can only succeed if large portions of the citizenry become actively engaged in their own local communities. In this way, introducing new forms of local governance into our health care system may help revitalize a lost sense of civic engagement that once served as the foundational bulwark of American-style democratic self-governance. That's a tall order, but someone has to lead the way.

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Table 1. Translation of Terms Used in Commons Theory to Health Contexts

Natural Resources	Health Micro-Commons	Regional Health Commons
CPR = Common Pool Resource (Example: population of fish or water in irrigation system)	Program (for clinical care, quality improvement, or health promotion)	Overall stock of physical, financial, human, and social capital in region related to health or health care
Resource Unit (example: a fish once it has been caught, or unit of water extracted)	Episode of care for an individual	Care for individuals in an identifiable population segment
Actors: Appropriators and Providers may be from same group	Individual patients are appropriators and health care provider organizations are stakeholders	All citizens of the community, as individuals or as members of groups.
Appropriation (extraction of resource unit from resource pool)	Benefits received from program	Total utilization and costs of care for a specific group or disease treatment.
Provision: replenish resource or construct and maintain infrastructure	Health care providers (individual and corporate) make contributions to program	Health care provider organizations, educators, professional associations
Appropriation Rules restrict time, place, quantity, technology of resource extraction	Rules define eligibility for beneficiaries	Regulations set by public authorities or private associations.
Provision Rules require contributions to replenishment of resource or construction and maintenance of infrastructure	Rules specify which health care provider organizations are responsible for which services	Regulations set by public authorities or private associations.
Rule-making activities by community or by user group	Contracts among provider organizations to deliver health care services	Cross-sector collaboration on specific programs or general community issues.
Rules made by higher level public authorities may restrict ability of local users to set or enforce own rules	Regulations from local, state, and national authorities, and certification organizations	Regulations set by public authorities may restrict cross-sector collaboration as violation of anti-trust protections.
Tragedy of the Commons: overuse leads to degradation or destruction of the resource	Demand for the program's services may overwhelm available supply	Rising health care costs may reduce overall economic productivity
Goal of **Sustainability** (ensure future access to resource)	Financial viability (avoid dependence on grants); problem may continue to affect new groups of potential beneficiaries	Triple Aim (better health, high-quality care at lower costs) for specific programs, system requires Quintuple Aim (Triple Aim plus Equity and Productivity)
Common property (joint ownership)	Joint ventures and collaborations	Stewardship team coordinate programs

Table 2. Design Principles for Sustainable Commons Management

	Resource Commons (Ostrom)	Health Program Micro-Commons (McGinnis)
Clear Boundaries	Boundaries (both for the biophysical resource and the social group of eligible resource users) are clearly defined.	Initially eligibility requirements are clearly stated and respected, and further expansion should be undertaken with care.
Wide Participation	Collective choice processes enable most affected individuals to participate in making rules.	Health care provider organizations collaborate in program design and implementation; but active participation of beneficiaries can strengthen legitimacy.
Congruence	Appropriation and provision rules are seen as fair and are effective fits to local conditions.	Perceptions of effectiveness and fairness are key foundation for continued support for program.
Responsible Monitoring	Monitors are accountable to appropriators (or are the appropriators themselves).	Systematic data gathering should be built into program design, including consumer-based measures.
Graduated Sanctions	Graduated sanctions are applied to rule violators (in increasing levels of intensity).	Individual participants should receive recognition from employers for participation and incentives for good performance.
Dispute Resolution	Participants have regular access to relatively low-cost local (and other) arenas to resolve conflicts.	Emerging difficulties should be discussed openly and resolved internally whenever possible; legal remedies remain available.
Recognized Autonomy	Minimal recognition by “higher” authorities that appropriators have rights to self-organize and devise their own institutions.	Widely-accepted principle of professional autonomy and motivations for public service encourage innovation of new programs.
Nested Enterprises	Nested enterprises for appropriation, provision, rule-making, monitoring, enforcement, conflict resolution, financing, coordination, and evaluation.	Widespread experience with forming work teams for distinct tasks, and slowly building a wider range of coordination.
Long-Term Horizon	IMPLICIT ASSUMPTION: Continued access to resource is critical for future survival and/or strongly desired for their children’s benefit.	To prevent dependence on external funding, participants should be encouraged to buy-in by making long-term commitments.
Trusted Leaders	IMPLICIT ASSUMPTION: Leaders emerge from group and enjoy wide legitimacy and respect.	Program leaders should have both personal and professional reasons for wanting this program to continue to succeed.