Adaptive leadership and the practice of medicine: a complexity-based approach to reframing the doctor–patient relationship

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Abstract
Rationale, aims and objectives This paper applies the concepts of ‘adaptive leadership’, as developed by Ron Heifetz, MD, to the practice of medicine.

Methods Literature review and theory development.

Results Patients are complex adaptive systems facing both adaptive and technical health challenges. Technical health challenges are amenable to the simple or complicated expert-mediated technical interventions that are common in modern medicine, but complex adaptive challenges can only be addressed by patients doing the adaptive work to learn new attitudes, beliefs and behaviours. In medicine, we often make the mistake of offering technical interventions in lieu of supporting patients’ adaptive work. This error can result in poor clinical outcomes and wasted resources. Expecting simple or complicated technical ‘solutions’ to resolve complex adaptive health challenges is a failure of adaptive leadership and violates Ashby’s law of requisite variety. Adaptive leadership behaviours correspond to and complement doctor practices that have been shown to improve health outcomes and doctor–patient communication.

Conclusions Adopting an adaptive leadership framework in the practice of medicine will require adaptive work on our part, but it promises to improve the doctor–patient relationship, increase our effectiveness as healers and reduce unnecessary health care utilization.

Introduction
Modern medicine has made remarkable progress on treating illness, largely as a result of technological advances. Yet, we remain challenged by an epidemic of lifestyle-related chronic illnesses and out-of-control health care costs. Also, despite these high costs, medicine often falls short when viewed from the perspective of health creation. Recent large cost increases have been associated with only small improvements in health care system efficiency [1], and our technical clinical prowess fails to address the social, behavioural and environmental influences that are the major modifiable determinants of our patients’ health [2]. Continued high rates of patient non-adherence and utilization of complementary and alternative health care approaches also suggest that there is an important gap between the care our patients want and the care we provide [3–5]. Finally, many doctors are unhappy in their work or ‘burned-out’ [6]. Why, despite decades of quality improvement work, do these problems persist or get worse? What more can be done to make them better?

We propose that viewing the practice of medicine as ‘adaptive leadership’, as first suggested by Heifetz, promises to help us make progress on the above challenges. Key concepts in this model include: (1) distinguishing the technical work that doctors do for patients from the adaptive work that only patients can do for themselves; (2) avoiding the inappropriate use of technical interventions to address patient adaptive challenges; and (3) explicitly developing and deploying adaptive leadership strategies and tactics for doctors to facilitate patient adaptive health work [7].

In what follows, we briefly review the concept of ‘adaptive leadership’, suggest ways it applies to the practice of medicine, compare it with other points of view about the doctor–patient relationship and patient behaviour change, and discuss the implications for our profession. While these concepts apply to all
Adaptive leadership and medical practice

Adaptive versus technical work – an important distinction

The concepts of technical and adaptive work, and adaptive leadership, have recently gained considerable currency in the organizational leadership literature as a result of the work of Dr Ronald Heifetz, a psychiatrist who teaches at Harvard’s Kennedy School of Government [7–10]. Although Heifetz’s focus is on organizational leadership and change, exploring the application of the adaptive leadership framework to clinical practice has prima facie validity because both organizations and human beings are self-organizing complex adaptive systems, nested within a hierarchy of complex adaptive systems and seeking to optimize performance as they co-evolve in a constantly changing fitness landscape [11,12].

Technical challenges are situations where both the problem and the potential solution can be clearly defined. The work required to successfully address a technical challenge consists of identifying, organizing and implementing the necessary components of an appropriate solution that is well defined by evidence or an authority. Technical challenges are amenable to expertise. They do not require substantial organizational or personal learning or behaviour change. Technical solutions are generally well suited to addressing simple or complicated problems, as defined by Glouberman and Zimmerman [13]. Examples of technical work in health care include surgical and other therapeutic procedures, and the prescribing of medications.

Adaptive challenges differ from technical challenges in three important ways. First, recognizing the problem, and figuring out how to solve it, both require learning by the stakeholders (e.g. patients). Second, implementing the solution requires fundamental stakeholder behaviour change. Authoritative experts (e.g. doctors) cannot do this work; the stakeholders must do it. Third, the behaviour change required to respond to adaptive challenges involves trade-offs and losses for the stakeholder. Fear of loss engenders resistance to change and avoidance of adaptive work.

Adaptive challenges are characteristic of complex adaptive systems. Health is an emergent property that arises from the non-linear interdependent interaction of each patient’s unique genetic, personality, social and environmental factors, which affect health both directly and by influencing behaviour. Adaptive challenges typically arise when substantial change in a person’s internal state or environment causes performance deterioration, or creates a gap between the way things are and the way they need to be. To survive and thrive in the face of an adaptive challenge, people must adapt. This requires that they recognize the need to change, learn new behaviours and abandon those behaviours, beliefs and attitudes that no longer serve them. They also must work to change the social and environmental determinants of their health. Adopting a healthier lifestyle is adaptive work, as is participating in psychotherapy, managing work stress or coping with end-of-life care.

Health problems can have both technical and adaptive components. Deciding whether and when to have cataract surgery, and what type of intraocular lens to get, is adaptive work; replacing the cataract with a lens implant is technical work. Managing a chronic illness is a mixture of technical and adaptive work. Medications help treat high blood pressure, but to achieve good control patients must do the adaptive work to change their lifestyle and take their medications reliably.

Technical solutions can also be used to facilitate patient adaptive work. A patient with low back pain may need analgesia in order to perform strengthening and stretching exercises to restore spinal structural integrity and resilience. Here the technical solution (pain medications) is being used as an adjunct, not a replacement, for the really therapeutic process, which is adaptive work.

Another distinction between technical and adaptive challenges is that these two types of problems require different kinds of clinician behaviour. With technical challenges, we are called upon as experts to provide technical solutions for our patients. But the patients themselves must confront the adaptive challenges. Our role is to help them by practicing adaptive leadership – ‘the practice of mobilizing people to tackle tough challenges and thrive’ [8] (p. 14).

Leadership is an activity, not a role. As health experts, our position of authority may be useful in mobilizing patients to do their adaptive work, but it alone is not sufficient. Heifetz et al. put it this way: ‘People have long confused the notion of leadership with authority, power and influence. We find it extremely useful to see leadership as a practice, an activity that some people do some of the time. We view leadership as a verb, not a job. Authority, power and influence are critical tools, but they do not define leadership. That is because the resources of authority, power and influence can be used for all sorts of purposes and tasks that have little or nothing to do with leadership, like performing surgery or running an organization that has long been successful in a stable market’ [8] (p. 24). The adaptive leadership framework applies to the practice of medicine at two levels. At the condition level, practising adaptive leadership can help our patients respond to specific adaptive challenges, such as managing a chronic illness. At the patient level, we can help our patients build their adaptive capabilities in general, so that they are globally more adaptive, resilient and autonomous.

Why this matters

Failure to properly differentiate adaptive from technical problems results in the misapplication of, or inappropriate reliance on, technical interventions to address adaptive problems. Substitution of technical solutions for adaptive work is often ineffective (or only temporarily effective), and may perpetuate or eventually aggravate the original problem. According to Heifetz, ‘treating adaptive challenges as if they were technical problems’ is one of the most common causes of leadership failure [8] (p. 19). [Note that we sometimes do the opposite – misdiagnose a technical challenge (e.g. lactose intolerance) as adaptive (‘irritable bowel’) – which is also not good.] This problem is common in modern medical practice. For example, low back pain is a condition for which doctors are prone to substitute technical solutions for adaptive work. Most chronic low back pain disability is associated with insufficient physical activity, being overweight, tobacco use, depression, return-to-work expectations and fear-avoidance beliefs [14–21]. Changing these factors requires adaptive work. Substitution of technical work like surgery and passive physical therapy often fails to produce long-term benefit, and can cause harm by distracting the patient from...
doing the necessary adaptive work and, in the case of surgery, further weakening the structural integrity of the spine. Yet, surgery rates for low back pain are increasing rapidly [22]. Increased use of technical interventions for low back pain does not appear to be producing any population health benefit [23]. Other examples of technical ‘solutions’ substituting for adaptive work include coronary artery revascularization instead of cardiovascular risk factor control, end-of-life chemotherapy instead of hospice and chronic proton-pump inhibitor treatment in lieu of lifestyle modification for gastroesophageal reflux disease.

Overuse of technical interventions for health problems that require adaptive work can harm our patients in three ways. First, side effects and complications of technical interventions cause harm directly. Second, the short-term benefits of technical interventions may seduce patients into thinking their adaptive work is not necessary. Third, excessive focus on technical work distracts us from developing effective ways to support our patients’ adaptive work.

Several mechanisms may contribute to the substitution of technical interventions for adaptive work including failure to distinguish between the technical and adaptive components of a problem; excessive confidence in the efficacy and safety of technical interventions; patient resistance to adaptive work; and ‘hypoplastic’ provider adaptive leadership skills.

As Heifetz notes, the tendency to substitute technical interventions for adaptive work is a general phenomenon and not specific to health care. However, certain characteristics of the health care system and culture reinforce this practice pattern. For instance, health care business models, especially in the United States, are generally aligned with promoting the use of technical solutions. Current fee-for-service provider compensation models and health insurance benefit designs both incent procedural and technical interventions more than the cognitive and relationship services that are required to support patient adaptive work. Pharmaceutical and device manufacturers profit from the use of their products, not from the counseling and coaching that helps patients do adaptive work.

Cultural and human factors also encourage over-reliance on technical solutions. Faith in the ability of technology to solve problems and make life easier appears to be widespread. In addition, we live in a society that often acts as if suffering and death are optional [24,25]. Adaptive work requires effort and, our self-regulatory capacity to sustain that effort is a limited and exhaustible resource [26]. Adaptive work also requires change, and change risks loss, which we tend to avoid. Finally, adaptive work takes time, and we are often impatient for results.

People also tend to view the world and health in a short-sighted and linear way, because of our perceptual and cognitive limitations [27]. We focus on short-term effects of our actions, rather than the longer-term, often unintended consequences, which are typically hard to identify or predict. It is a general property of complex systems, including human beings and social systems, that many if not most interventions have beneficial effects in the short term but cause either no benefit or harm in the long term [27]. Thus, we are often blind to the potential long-term adverse consequences of over-reliance on technical ‘solutions’ for adaptive problems.

Finally, our approach to medical learning is biased towards exaggerating the value of technical work as compared with adaptive work. Randomized controlled trials (RCTs) are the evidentiary standard for medical truth. They were designed to study biological systems in the laboratory, not social systems in the real world. RCTs are less useful for assessing the value of complex interventions like adaptive work [28,29]. Moreover, because of cost and feasibility considerations, RCTs often evaluate only the short-term effects of an intervention and may fail to detect delayed adverse consequences, thereby overestimating the benefits of technical solutions.

**These ideas are new**

Distinguishing between adaptive and technical health challenges, identifying the harm arising from the substitution of technical interventions for adaptive work and in particular reframing medical practice as adaptive leadership are novel concepts.

The adaptive leadership framework has been applied by health care organizations, but not to clinical practice, despite Heifetz’s early use of medical practice as an example of adaptive leadership [7] (p. 73 et seq.) A Medline search using the phrase ‘‘leadership’’[Mesh] AND ‘‘adaptive’’[TW] yielded 39 papers published since 1985. These papers focus on the impact of adaptive leadership on organizational, team or individual provider performance. None describe the provider–patient relationship in terms of adaptive work or adaptive leadership. One paper specifically mentions the concept of adaptive leadership in the context of chronic care, but the emphasis is on personal doctors practising adaptive leadership to promote health system reform, not to promote patient adaptive work [30].

The psychotherapy literature discusses concepts like ‘patient work’ and the ‘working alliance’ between patients and providers, but the medical literature generally uses ‘patient work’ to mean the work providers do for patients, not the work patients do for themselves. The writings of Anselm Strauss and his collaborators are an exception to this generalization [31]. However, Strauss acknowledged that patients ‘‘are not easily conceived by (health care) personnel as actually working and certainly not as a literal part of the division of labor in managing and shaping their own (health) trajectories’’ [31] (p. 191).

The adaptive leadership framework complements other approaches to improving the effectiveness of the doctor–patient relationship. The literature on patient self-management and the chronic care model addresses the important role that patient adaptive work plays in managing chronic illness, although it does not name it as such [32,33]. Potential provider adaptive leadership practices include provider behaviours that have been identified as best practices in the existing provider–patient relationship literature [34–38]. Adaptive leadership, in acknowledging that patients must do the adaptive work, promotes patient autonomy, which has been associated with improved patient outcomes [39]. Autonomy-fostering doctor behaviour increases patient autonomy, and can be taught [40].

The Patient Activation Measure (PAM) assesses patient behaviours associated with adaptive work. Greater patient activation correlates with improved self-management skills [41], and tailoring health care practices based on patient activation level may improve clinical effectiveness [42].

Relationship-centred care (RCC) is another approach to care delivery that has gained attention in recent years [43].
Underlying this concept is the complexity-based idea that health care delivery system outcomes, including clinical quality, effectiveness, efficiency, and provider and patient experience, emerge from and are determined by the nature of the relationships (provider–patient and provider–provider) that occur in these systems. Changing these relationships is therefore a prerequisite for changing system performance and clinical outcomes. Some empirical evidence supports this construct [44,45]. Changing the behaviour of people in relationship is adaptive work. Thus, the concepts of RCC fit in the adaptive leadership framework; adaptive leadership suggests some specific behaviours with which to practise RCC; and adaptive leadership at the organizational level may facilitate more widespread adoption of RCC. Three additional movements in medicine, ‘partnership medicine’, ‘participatory medicine’ and ‘integrative medicine’, are also focused on changing the working relationship between providers and patients and are consistent with an adaptive leadership approach to medical practice, although they do not explicitly call for that [46–48].

The adaptive leadership framework provides important new strategies that seem likely to increase the effectiveness of patient self-management interventions. These include specific methods for managing work avoidance, orchestrating conflict and acknowledging losses. For instance, orchestrating conflict involves keeping patient distress in a productive range so that it motivates, but does not overwhelm, the patient doing adaptive work. Heifetz suggests seven steps for managing conflict: (1) prepare; (2) establish ground rules; (3) get each view on the table; (4) explicitly articulate the conflict and trade-offs inherent in the different views; (5) encourage accepting and managing losses; (6) generate and commit to experiments; and (7) institute peer-leadership consulting (e.g. patient support groups) [8] (pp. 152–153).

Three practices facilitate this work: creating a holding environment, selecting the participants and regulating the ‘heat’. A holding environment is ‘all those ties that bind people together and enable them to maintain their collective focus on what they are trying to do’ [8] (p. 155). ‘A continuous healing relationship’ should be such a holding environment [32]. As for selecting the participants, we always include the patient and ourselves, but sometimes adding family members or friends can facilitate progress. Finally, regulating the heat keeps the level of distress in a productive range that allows the patient to do adaptive work rather than avoiding it either because of being too ‘comfortable’ with the status quo, or overwhelmed by the challenge.

The adaptive leadership framework maps well to theories of behaviour change like the transtheoretical model (TTM). Indeed, TTM can be seen as a structured approach to facilitating patient adaptive behaviour change work. Tailoring the intervention (adaptive leadership) to fit the patient’s readiness to change behaviour has been associated with better programme retention and more successful behaviour change [49]. The TTM stages of change construct is a proven organizing principle for systems support in facilitating behaviour change as well [50]. Indeed, to the extent that the TTM model exemplifies applied adaptive leadership, the extensive scientific evidence for the TTM approach can be interpreted as supporting the potential clinical value of the adaptive leadership framework [51]. Shared decision making is another structured approach to the adaptive work of preference-sensitive decision making [52]. Likewise, recent advances in end-of-life care give us guidance on how best to support the adaptive work of dying and grieving [53]. Twelve-step programmes are self-organizing groups that support patient adaptive work.

Finally, and perhaps most importantly, the adaptive leadership framework makes explicit our need to actively address provider and patient interdependence. Anselm Strauss recognized over thirty years ago that ‘there are, alas, no simple answers to the seemingly straightforward question: What is the patients’ part in the division of labor?’ [31] (p. 204). Explicitly acknowledging patients’ work on behalf of their own health clarifies that patients are part of the health care team and begins to answer Strauss’ question.

Teams are groups of ‘two or more individuals that adaptively and dynamically interact through specified roles as they work toward shared and valued goals’ [54]. Effective teams need two kinds of competencies: teamwork and task-work. Task-work competencies are the specific knowledge, skills and attitudes team members use to do their individual tasks. (For example, the PAM measures patient task-work competencies.) Teamwork competencies are the knowledge, skills and attitudes team members need to be able to function together as a high-performing interdependent team. The adaptive leadership framework gives us a context in which to think and talk about the teamwork process and competencies required by patients, doctors and other professionals working together in patient-centred health care teams. Lack of such a meta-conversation about the teamwork competencies of both patients and providers may be one reason why so many important tools that facilitate patient adaptive work, such as the TTM and shared decision making, have not been widely adopted by doctors in clinical practice.

Unfortunately, many doctors may not be comfortable practising adaptive leadership. Using a modification of the PAM to measure clinician support for patient activation, Hibbard et al. found that doctors were supportive of the idea that patients should follow medical advice, but were progressively less accepting of patients making independent judgments, taking independent actions or seeking information independently [55].

Implications for medical practice

Reframing the practice of medicine as adaptive leadership would require us to do adaptive work to change how we practise. There is no technical solution for this challenge. An electronic medical record prompt might remind us to ask ourselves what aspects of the patient’s problem are technical or adaptive, but it will not turn us into effective adaptive clinical leaders.

Heifetz and Laurie have developed six principles for leading organizational adaptive work that can be applied to clinical care. These include ‘getting on the balcony’ (mindfulness), identifying the adaptive challenge (diagnosis), regulating distress (keeping the patient engaged in the process without overwhelming him), maintaining disciplined attention (not getting distracted by technical work), giving the work back to the people at a rate they can tolerate (it is, after all, the patient’s work) and protecting voices of leadership from below (empowering patients as their own source of health) [7] (p. 128). Lest we think that our patients will necessarily resist these changes, the literature suggests that patients would actually like more help with self-management skills than they currently receive [56].
Another important component of adaptive leadership is ‘seeing yourself as a system’. Part of being an effective leader is learning to self-manage. The adaptive leadership framework suggests tools for coping with the stress, frustration and fatigue of modern medical practice, so that we are better able to ‘stomach the journey’ [8] (p. 260).

Adaptive leadership also involves becoming more expert about the emerging science of ‘work’, and technologies and exercises that facilitate adaptive work. Behaviour change requires self-regulatory strength, which like a muscle fatigues (over the day, and with effort), but can be built up over time [26]. For instance, patients may be more successful performing a new health-promoting behaviour in the morning, when their self-regulatory strength is likely to be maximal. We can enhance our patients’ adaptive capacity by prescribing exercises that help them build their self-regulatory strength.

We can also expand our repertoire of technical interventions to include technologies that facilitate patient adaptive work. Phone- and Internet-based expert system communication platforms based on the TTM are an example of effective behaviour change facilitating technologies [51]. Likewise, fitness oriented video game technologies promise to facilitate the adaptive work of increasing physical activity [57].

The application of the adaptive leadership paradigm to medical practice is limited in at least one important respect. Some of our patients are impaired and may have limited or no capacity for doing adaptive work. Still, the need to modulate adaptive leadership to fit patient capacity does not invalidate the potential value of clinical adaptive leadership for most of our patients, who do have capacity to do adaptive work. Above all, we should not give up on our patients. Adaptive challenges persist for years, and some, like aging, last a lifetime. Perseverance is an essential element of adaptive leadership – maintaining the holding environment, and the ‘heat’, to facilitate patient adaptive work.

The adaptive leadership framework has implications for the organization of clinical care. In considering care delivery innovations like team-based care and health care homes, we should ask not only how best to deliver the technical solutions that are so important for illness care, but also how best to organize care delivery so that it optimally supports patient adaptive work and fosters an adaptive organizational culture.

Some might argue that doctors should keep their technical work focus and delegate the adaptive leadership to nurses or other members of the health care team. Such a division of labour may have some virtues, but doctors have an authority that gives them the potential to be particularly effective in motivating patients to do adaptive work. The separation between ‘caring’ (nursing) and ‘curing’ (medicine) that to some extent reflects the focus of clinical medicine on technical interventions may not be optimal [58]. That said, in current practice nurses and health educators often take on the role of facilitating patient adaptive work (viz. disease management, discharge planning, care coordination and lifestyle modification coaching). The exact division of labour in a care setting should probably be locally determined based on the clinical context, the interests and aptitudes of the staff, the resources available, and the outcomes achieved. Doctors have an important responsibility to participate in and facilitate this organizational adaptive work.

The adaptive leadership framework also has implications for the role of patients. Clinicians are well trained and experienced with technical health solutions, but in most cases we have not personally faced the same health challenge as the patients, so we are relatively ignorant about what their adaptive work entails. In contrast, experienced patients have first-hand knowledge of doing adaptive health work, and may be valuable allies for providers and other patients. The literature on self-management training and the ‘citizen health care’ movement supports this [33,59–61]. Also, because formal authority is not required to practise adaptive leadership, patients have the opportunity to practise adaptive leadership by helping us recognize our professional adaptive challenges, and motivating our adaptive work, so that we better meet their needs. We should encourage them in this role.

In addition to changing medical practice, there are implications for research, particularly in primary care. We need to understand how adaptive leadership concepts relate to what is already known about effective provider–patient communication, and we need to develop an evidence base regarding provider adaptive leadership best practices. As the adaptive leadership framework becomes more evidence-based, it will have implications for the training of medical students and residents, and for continuing medical education.

Ultimately, financial incentives for both doctors and patients must change so that we are rewarded for practising adaptive leadership with our patients, and our patients are incented to do health-promoting adaptive work. As long as technical solutions are rewarded in excess of their value, we will continue to misapply technical interventions to treat adaptive challenges and fail to adequately support our patients’ adaptive work.

**Benefits of adopting the adaptive leadership framework in clinical practice**

Reframing the doctor role as adaptive leader promises a number of benefits for both patients and doctors, and is consistent with the ‘triple aim’ [62]. First, it gives us a new perspective and set of practices with which to help our patients be healthy. It does this by providing a framework that explicitly encourages patient adaptive work, addresses the doctor’s role in helping the patients build adaptive capacity and become more autonomous, and facilitates the adoption of evidence-based but under-utilized clinical practices such as the TTM, shared decision making, advance directives and peer-led self-management training.

Second, it promises to improve the patient and doctor experience of the clinical encounter, and the doctor–patient relationship, by giving us tools for dealing directly with the issues of conflict and fear of loss associated with patient adaptive work. It also has the potential to improve doctor well-being by helping doctors build their own adaptive capacity so as to maximally help the most patients possible, while maintaining resilience. The concept of being ‘leaderly’ may be fundamentally re-energizing to a profession beset by burnout.

Finally, it has the potential to help hold down medical costs and make health care more efficient by reducing overuse of technical services.
Using complexity science to improve the adaptive leadership framework

Heifetz’s elucidation of the adaptive leadership framework is based on an appreciation that people and organizations are complex adaptive systems. However, we believe application of additional complexity concepts will enhance adaptive medical practice. Examples of this include working with patients to recognize and change the ‘simple rules’ that perpetuate their mal-adaptive behaviour; anticipating and educating patients about the effect of feedback loops triggered by medical interventions, so as to avoid or minimize negative and often delayed unintended consequences; using exploration and ‘learning by doing’ to discover what works for individual patients; and helping patients design and implement multi-level interventions with the ‘requisite variety’ to produce enduring health improvement. Clearly, what we envision transcends, and with proper study can expand, the boundaries of evidence-based medicine as it is currently conceptualized.

Conclusions

We propose that adopting an adaptive leadership approach promises to improve the practice of medicine. This requires that we see our patients as complex adaptive systems facing both technical and adaptive health challenges. We must correctly distinguish between the technical and adaptive components of every patient problem, and offer appropriate solutions. Failure to do so leads to inefficient and ineffective health care that injures patients and waste resources. Substitution of technical interventions for adaptive work is a prevalent problem in modern medicine and represents a failure of adaptive leadership. To address this issue we need to do the adaptive work to change how we practise medicine. This requires that we be mindful of the problem, develop and apply evidence-based adaptive leadership skills on behalf of our patients, expand our repertoire of technological interventions to include technologies that facilitate adaptive work, and work together as a profession to address the financial, social, cultural and human characteristics from which this problem emerges. In brief, the adaptive leadership framework is a complexity-based approach to practise that promises to make our services more effective, efficient, patient-centred and sustainable.

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