Evidence and Innovation: Using the Known to Lead into the Unknown

Evidence-Based Practice and the Innovation Paradigm: A Model for the Continuum of Practice Excellence

Tim Porter-O'Grady and Kathy Malloch

The secret of change is to focus not on fighting the old but on building the new (p. 113).[1]

CHAPTER OBJECTIVES

Upon completion of this chapter, the reader will be able to:

1. Define and outline the key components of a cybernetic dynamic model of evidence-based practice and innovation.
2. Outline the critical interdependencies between evidence and innovation that are indispensable to creating appropriate action and achieving sustainable outcomes.
3. Identify the essential processes associated with linking evidence and innovation that are vital to advancing positive change.

INTRODUCTION

One of the most challenging issues related to intersecting evidence and innovation is the perception that they are fundamentally different. In fact, evidence and innovation are critical partners in a continuum of relationships, and their interaction is essential to accurate and sustainable outcomes (Melnyck & Overholt, 2014).

It is easy to differentiate evidence-based practice (EBP) and innovation by definition. EBP represents a more solid and factual foundation that is the product of deep

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[1] Spoken by the character Socrates in Millman, D. (1984). *Way of the peaceful warrior: A book that changes lives.* Tiburon, CA: HJ Kramer.

study or research incorporating all related elements derived from multiple sources, from disciplined research to experiential applications (Spencer, Detrich, & Slocum, 2012). Innovation, on the other hand, demonstrates a more generative but just as rigorous process that leads to something new and changes our circumstances and lives (Morrar, 2014). Clearly, both are dynamic processes with clear structures, stages, and disciplines that lead definitively to an impact or a product. Each relates to the other insofar as one (evidence) serves as the foundation for the other (innovation) (Hofbaur, Murawski, Karlsson, & Freddie, 2013).

This notion of evidence and innovation as a dynamic is critical to understanding the multidimensional nature of both. Dynamics suggests that there is an element of both interaction and impact (Rook, 2013). Also implied is the continuous nature of this interaction as indicated by a cybernetic (closed loop) process that ultimately changes the environment, the system, and people (Pickering, 2014). The assumption here reflects the level of complex interactions between elements and components of a process in a way that influences what those processes do, how they work, and the future change the action of this relationship creates on processes and products (**Figure 1-1**).

Figure 1-1   Evidence and innovation dynamic
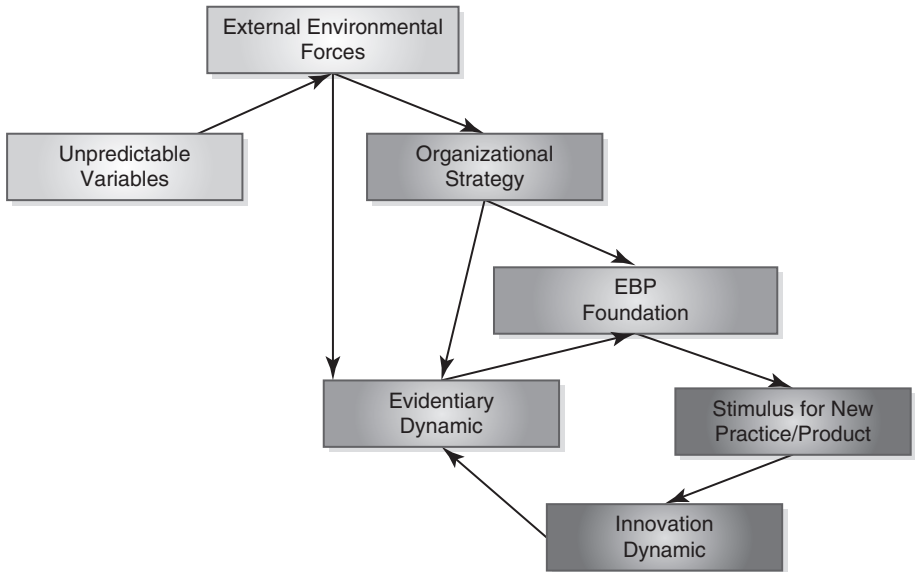
Discussion

How does EBP serve as the foundation for innovation? What is the relationship between the two? Do you think that evidence is always the foundation upon which innovation is built? On the other hand, can innovation emerge instantaneously, free from a relationship or interaction with any other environmental or organizational forces?

WHY EVIDENCE AND INNOVATION?

Much transformation and essential change is occurring in the healthcare delivery system. Indeed, the very foundation of the delivery of health care is shifting from a volume foundation to value drivers (Shaw, Asomugha, Conway, & Rain, 2014). Elements of a new concept associated with Triple Aim objectives are now forming the premise cornerstone of the future delivery of health care. These Triple Aim objectives reflect the shifting change in the broader landscape of technology and clinical science and are radically altering the context and framework for health service delivery (Costich, Scutchfield, & Ingram, 2015). These products of the digital age now create the possibility for generating and managing big data in a way that provides a high level of usefulness and applicability never seen in the history of human experience, especially in the healthcare system (Simpao, Ahumada, Galvaz, & Rehman, 2014). In fact, one of the major objectives of the Patient Protection and Affordable Care Act of 2010 (PPACA) and the Centers for Medicare and Medicaid Services (CMS) in healthcare transformation can be identified as the Triple Aim (service satisfaction, quality metrics, and affordability). It requires the aggregation, generation, and utilization of large pools of data, which clearly enumerate scientific and practice evidence, for the provision of clearly enumerate scientific and practice evidence the provision of clinical services (**Figure 1-2**).

One of the most dramatic impacts of this digital reality is the ability to aggregate, integrate, and coordinate huge composites of data and to sort through it in meaningful ways to obtain significant information that provides value in defining, interpreting, and evaluating the vast variety of healthcare activities in an unlimited array of arrangements. In fact, the larger the data pool becomes, the more difficult it is to manage, yet the more vital it is to systematically organize it and accelerate its usefulness in making decisions, taking action, and evaluating the impact. Management of these huge pools of data now becomes a significant, indeed vital, challenge in the appropriate provision of health care and the evaluation of its effectiveness (Wills, 2013).

It is out of these foundations that evidentiary dynamics have emerged. EBP is a formal process associated with this notion of evidentiary dynamics, which serves as the

Figure 1-2   Triple-aim objectives
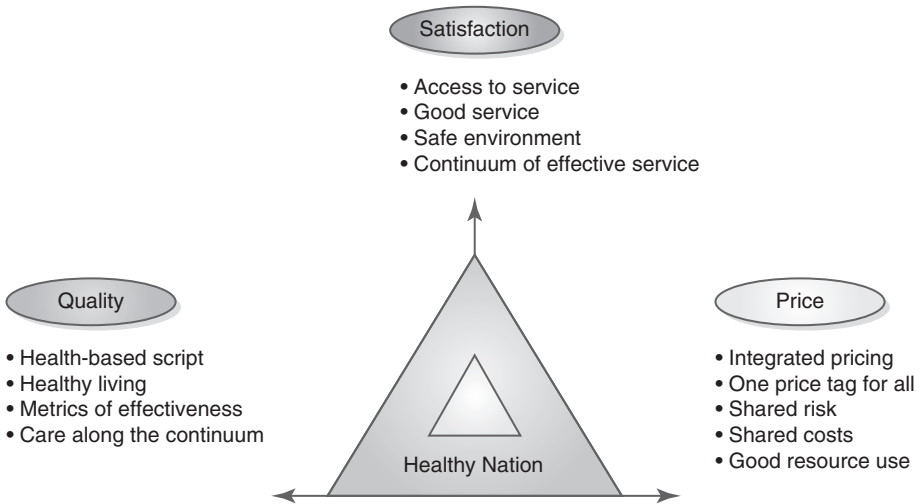
complex driver of the fluidity necessary to understand the interactions and relationships embedded deep within the evidentiary process. Evidentiary dynamics is merely a term that alludes to the complex array of individual elements (agents) that must operate in concert to produce a value that is both meaningful and useful in making decisions and taking action. In evidentiary dynamics, it is the confluence of the full range of facts, factors, elements, and influences that, when converged, deliver a message that has meaning and value for the receiver (Malloch & Porter-O'Grady, 2010).

WHAT IS EVIDENCE?

Evidence is simply the accumulation of facts and factors that provide conclusive insight into the legitimacy, accuracy, and viability supporting a particular process or action. Because of the veracity of the evidence and its generalizability, it serves as a foundation or the floor of an action that establishes a rational and justifiable basis upon which to undertake the action and to utilize it as a standard for performance. An EBP serves as the foundation of our actions in health care for patients by ensuring that the minimum standards of viability, appropriateness, and safety have been established and can be replicated with a high level of assurance such that consistent impacts and outcomes can be achieved. Until such evidence is eclipsed by newer and more relevant data to suggest a change in practice and behavior, the current evidence in practice serves as the standard (C. Brown, 2014).

However, since evidence is dynamic, a static or permanent foundation for practice is never created in an evidence-based environment. Evidentiary dynamics suggests the continuous exploration, discernment, and, ultimately, creation of new information, insights, and practices. These processes imply an ongoing currency—a continual production of data that suggests an aggregation of existing practices and the generation of new knowledge that emerges from those practices. This knowledge-based practice evolves into new research outcomes and changes that are suggested by enhancements and best practices drawn from both experience and new interpretations of data (Porter-O'Grady & Malloch, 2014).

In evidence-based processes and practices, a mosaic of actions and interactions become necessary to assure both relevance and viability in a way that positively influences clinical practice. Structures of EBP are grounded in effective data systems that demonstrate a high degree of interoperability, fluidity, flexibility, and portability. All these elements or characteristics are associated with the capacity to make just-in-time decisions and undertake dynamic and continuously modified clinical practice. To do so, both the information system and the practitioner must find that the components of the information and the characteristics of clinical practice have the capacity to change quickly in ways suggested by emerging evidence. Two dynamics must occur in concert to make these practices real. First, the evidence-driven data systems must yield accurate, immediate, and relevant data related to particular practices in a relatively short period of time and in a useful manner. Second, the users' approach to practice must be fluid and flexible enough so practice processes can be immediately adjusted and changed in a way that incorporates these changes into the normative delivery of specific patient care. Of course, both of these objectives are highly problematic if the information systems are not sufficiently responsive to the data or if people tend to perpetuate ritual and routine instead of embrace relevant and immediate recommended changes to practice. Our clinical history is grounded in volume that is certified and sanctified by an endless array of mechanisms founded in ritualistic protocols, procedures, and practices that almost prevent individuals from being available to recommended improvements in practices without a great deal of personal and organizational drama and trauma (McNelis, Ironside, Zvonar, & Ebright, 2014).

EVIDENCE AS A REQUIREMENT FOR PRACTICE

EBP implies a generalized availability and practitioner readiness to incorporate sometimes substantive adjustments into practice in relatively short periods of time as an ordinary operational mechanism for undertaking clinical work (Lubejko, 2014). This is precisely the reason that evidence-based processes must be incorporated into the structural components of operating clinical practices so they become the prevailing format for clinical work activities and the normative way of doing clinical business.

Case Example: Designing and implementing EBP

Sally Brown, RN, MSN, has just become the new director of medical–surgical services in her hospital. An initial assessment of the clinical structure supporting care indicated that much of practice in a medical–surgical setting was grounded on policy and procedure, historic practice routines, and individual nursing experience. Recently the organization had committed to lean strategies to minimize practice variability and errors in clinical practice. The staff members had not robustly engaged these efforts and seemed lost in bridging their own nursing approaches in a more formal process that set new parameters for their practice.

Sally believed that EBP was essential to build solid practice foundations that would lead to more data-based practices, reduce variability, strengthen professional and patient care relationships, and advance quality nursing practice on all medical–surgical units. She knew she would have to initiate an effective plan in a series of steps to structure EBP and to gain staff engagement in its implementation.

Prior to a process of implementation, Sally knew that a structured approach to EBP would be required to formalize EBP as a part of nursing clinical work. The first steps of implementation were grounded on the plan function beginning with three steps—ask, acquire, and appraise, to include the following:

- Raise key questions with staff regarding the safe care of individual patients, episodes, populations, and communities.
- Define and search legitimate sources of data regarding these questions of care.
- Select care priorities and processes that are most important to particular patient care activities or interventions.
- Clarify specific and definable goals with regard to care and intervention and the intended impact and outcome the related activities would produce.
- Clarify and study existing evidence related to effective EBP programs elsewhere, as well as interventions and standards specifically related to aligned patient care events, episodes, or interventions in other settings.

As Sally and her design and implementation team pursued building a framework for EBP, the following key questions related to effective implementation needed to be specifically addressed by the clinical leaders:

- How are the insights, views, and experiences of providers and patients included in the EBP considerations?
- How was the implementation design specifically tailored to the unique characteristics of units and care groups, including consideration of role, competencies, unit culture, patient characteristics, and past practices?

- How were successful models from other organizations and institutions accessed and analyzed to determine their relevance and viability in informing the development of EBP at Sally's institution?
- How was the design and implementation team educated, supported, and resourced, and how was their work communicated to all stakeholders?
- Were metrics established to measure progress and challenges ahead of understanding, commitment, and application of strategies for EBP implementation?
- When adjustments were made in the implementation plan, were they noted and evaluated for effectiveness and impact?
- Is evaluation continuous, does the produced data inform and influence subsequent action and provide an opportunity for necessary change, and does it include staff engagement?

Sally recognized that these are simply initial essential steps and stages in designing and creating the beginning structures for a dynamic evidence-based process for each unit. Guided by a consistent and systematic approach for the medical–surgical services as a whole, each unit of service and clinical teams is able to adapt the processes and questions to their unique culture in specific patient populations. Continuous evaluation of the framework helps Sally make sure the EBP plan is appropriate and effective and the implementation achieves the intended impact.

As organizations become more amenable to value drivers and responsive to the Triple Aim of service excellence, metrics of high-level quality, and affordability, they will have to increasingly embed deeply within their cultures an operating milieu that requires an accelerating level of responsiveness to just-in-time practice changes, that demonstrate their availability to evidence that points to an immediate change.

Also of immediate interest in relationship to particular significance of evidentiary dynamics in the clinical workplace is the increasingly necessary and growing emergence of transdisciplinary care models in patient-centered delivery systems (Nandan & Scott, 2014). Each discipline brings its own clinical culture, practices, and applications to patient service in a way that is clearly and uniquely valuable in meeting patient needs. However, it is becoming increasingly evident that value is influenced and moderated by the degree of integration and goodness of fit between the activities of any one discipline and the actions of all disciplines involved in patient care (Pilon, 2015). Current research suggests that the interface of clinical activity of each discipline with the work of other disciplines is fragmented, often not aligned, and may even represent divergent goals for care (Starck & Rooney, 2015). Past mechanisms for communication among disciplines have been highly compartmentalized, vertically oriented, and structured in ways that often make it cumbersome and difficult. Research has shown that

these mechanisms significantly reduce the ability of practitioners and organizations to change practices or create innovative solutions to improve care (Weberg, 2013).

From the patient's perspective, individual increments of care and service operate at a low level of comprehension. The only interest is that all clinical activities of essential stakeholders converge in a way that positively affects the patient experience, improves the patient's condition, and advances the patient's healthcare experience. What individual practitioners provide for the patient, from the patient's perspective, is often amorphous and indeterminate. The patient hopes that all the practices of key stakeholders demonstrate a high level of synthesis that, when coalesced, results in improvement and moves the patient to a higher likelihood of health. It may be a good thing that the patient is not aware of how limited communication is among providers and how difficult it is to coalesce clinical goals, interactions, and communications in a way that assures a concerted, tightly woven clinical alignment rather than a patchwork quilt of somewhat isolated clinical events.

One of the significant challenges of EBP is the centrality of communication and integration of clinical stakeholders around an interfaced clinical plan of action. This plan should be clearly enumerated—to provide significant opportunity for demonstrating how well-grounded in evidence the individual and collective clinical action is, and to demonstrate how mutually supportive both the evidentiary data and clinical action is in practice. Lack of coordination is certainly becoming less acceptable as evidentiary principles now more broadly drive practice planning and decision making. Yet improving tool sets and mechanisms must be refined in the practice environment in a way that reflects a strong foundation in team-based clinical practices that are subjected to well-defined models of care delivery and ongoing mechanisms for evaluating impacts and effectiveness (Sheikh, George, & Gilson, 2014).

Sustainable EBP will increasingly be dependent on the capacity of team-based practice to ground itself in collective efforts to link and integrate discipline-specific practices in a community of practice for the convergence of effort that yields direct patient-centered benefits and impacts. Evidence of the degree of interface and goodness of fit of clinical effort will be as critical a part of the dynamics of evidence-grounded processes as will the clinical activities themselves. Transdisciplinary evidence-based mechanisms and processes are quickly becoming the foundation for future practice and the tool set for viable value-based practices.

A good part of establishing EBP as a foundation for future practice is eliminating rituals and routines that reflect the linear and procedural orientation to practice and moving to value-based practice that demonstrates clinical impact, care outcomes, and sustainable health (**Figure 1-3**). Evidence suggests the capacity for meaningful change. The meaningfulness of change requires the ability to understand the foundations for decisions and actions, comprehend the shifts that are occurring in real time, and translate those shifts into relevant response and action. The commitment to past practice

Figure 1-3   From volume to value to practice

Yesterday:	*Tomorrow:*
• Procedural	• Evidence
• Positional	• Mobile
• Subordinated	• Partnered
• Task/ritual/routine	• Impact/making a difference
• Volume of work	• Value of practice
• Hospital-based	• Continuum-focused
• Treatment/intervention	• Health, patient-centered

and well-established activities and routines simply because they have been proven effective is a direct impediment to using those same processes as a reference point for improving practice. If emerging evidence coming out of improvements or revelations in the science—or the failure or success of current practices, or even emerging innovations that elevate practices and outcomes—fail to change past practice, it then ceases to be relevant and viable (Belar, 2014).

Many practitioners hold to the values of what they were taught or believe that if it was good enough for them to learn, it is still good enough today, along with similar beliefs that suggest a sort of dictatorship of history. This notion that good practices are fixed and finite results in a rather strident connection to functionalism. At the institutional level, the same behaviors are represented by the infrastructure of policy, procedure, protocol, standardization, and so forth. From either the personal or institutional perspective, these patterns of behavior represent practice as a series of tasks and checklist items that, if completed properly, can assure safe patient care activity and positive outcomes. They assume that basing the plans and processes of care on metrics that suggest value and positive impact is a stronger and more sustainable approach to obtaining and advancing health. The issue here is not one of value for these tasks and practices; instead, it is an issue of perspective.

STANDARDIZATION AND EVIDENCE

Certainly, the use of safe practices, routines, and protocols provide significant value to good and safe patient processes and positive impacts. However, such standards need to be seen as foundations for practice in a way that establishes the foundation of practice upon which all practitioners firmly stand. These protocols suggest an agreement of basic practices and processes that reflect minimum expectations for relevance and safety that simply cannot be transgressed or violated. These foundations

suggest to the practitioner that good practice is grounded in solid principles and that as those principles remain valid, the foundation simply represents the ground of practice upon which all professionals stand for their individual and collective professional work.

It must be posited, however, that establishing the base of the foundations of practice does not itself assure practice excellence. Safety, for example, is a minimum right of expectation of every patient. Maintaining a safe environment for patient care should not be considered a measure of excellence. A safe environment is a basic expectation and right of patients in their interactions and experiences with the health system. A high level of safety is a low level of measure for patient care because it is a basic expectation that every practitioner should demonstrate at all times in all actions. Regardless of the principle or the foundation promulgated, patient care providers must clearly recognize that upholding those principles and foundations with a high level of consistency does not imply excellence; instead, it simply reflects both understanding and compliance with basic practice principles.

This same insight holds true for the process of standardization. Standardization reflects a basic set of principles or protocols that are proven effective and adhered to consistently in a way that demonstrates a good measure of value and positive impact for the patient (Merry & Hamblin, 2012). Recognizing that, no one should suggest that organizations or individuals can standardize their way to excellence. While standardization represents the consistent application of the foundation of our practice, excellence represents a reach toward the ceiling of our practice. Standardization represents the ground we stand on, and excellence represents a reach to different higher levels of service and care delivery that, once achieved, become the new foundation of our practice—a new foundation upon which to reach anew toward a ceiling (excellence) that raises our practice and enhances the patient experience.

EVIDENCE AS MOVEMENT

As stated at the beginning of this chapter, EBP is a dynamic. As such, it suggests constant activity and movement. Such practices indicate that when foundations are laid and principles are established, the work of practitioners is to use those foundations as a premise for setting out on a journey that ultimately challenges them in a way that will result in advancements, improvements, and enhancements of patient care practices and clinical outcomes. While evidence is predominantly about establishing principles and foundations through dynamic activity, it creates the drive—the urge, if you will—to grow, improve, and advance action and impact. Therefore, deeply implied in evidentiary dynamics is the suggestion for creativity and innovation, which are forces that are essential to improvement and advancement.

The leader in EBP environments is challenged to create a context where evidence-based processes serve as the dynamic impetus for mindfully reflecting and analyzing professional practices and clinical behavior as an ongoing requisite for data-driven patient care. The evidence-grounded leader recognizes that an environment essential to evidence is energized by rigorous and methodological, yet creative and imaginative, relationships and processes that move beyond existing evidence as professional staff reach for improvement, enhancements, and innovative opportunities for advancing practice (Aarons, Ehrhart, Farahnak, & Hurlburt, 2015). This notion of movement is fundamental to the understanding of EBP. Movement, in a complexity framework, suggests that nothing remains static or the same. The universe is in constant motion, both continuously constructing and deconstructing energy and matter everywhere. Therefore, nothing in existence can remain static or unchanged. The forces of this positive and negative energy are constantly operating to both create and deconstruct. The same can be said for human dynamics, including clinical practice. If practice is not always changing and improving, it is not simply doing nothing (remaining static). Because practice is itself a dynamic, if it is not improving, it is regressing. This regression is ultimately seen in accelerating levels of risk, diminishing rates of improvement, and continuing challenges to patient safety, care relevance, and positive outcomes. There is ample evidence to suggest that the slavish addiction to permanent ritual and routine, policies and procedures, tasks and processes, ultimately results in diminishing performance and decelerating metrics of value and patient impact (Grimmer, Dizon, Milanese, King, & Beaton, 2014).

Discussion

How do we understand this notion of movement in light of clinical practice? Is movement always either negative or positive? What do we mean by the statement that there is nothing static in the universe? How do we keep EBP from becoming negative (ritual, routine, nonrelevant, etc.)? How does EBP lead to the potential for creativity and innovation?

INNOVATION AND EVIDENCE

Evidence and innovation are dynamic partners within the same continuum. The innovative practice leader is always grounded in the evidence and uses that evidence as the footing from which creative energies are generated to advance and change the care experience. At the same time, the evidence-grounded innovator values and respects both the discipline and the rigor of the scientific process for its use and the translation of its products into practice. This attachment to the exactitudes of analysis guide the

evidence-based innovator in validating good processes, disciplining the translation of innovation in ways that represent a high level of relevance that result in a strong demonstration of positive impacts (Porter-O'Grady & Malloch, 2014).

The relationship between evidence and innovation can be described as cybernetic. The definition of *cybernetic* is the science of communication and control that looks at the controlled yet interactive and continuous relationship of elements within a system and their dynamic influence on each other. Cybernetic systems are usually closed-system mechanisms that loop continuously, determined by how processes move within them and the relationships among elements in the system. Cybernetic systems are generally cyclical, dynamic, and highly interactive. Each component or part of the system is interdependent, with other parts representing a continuous flow that begins at one place, loops through other elements of the process, and ends up where the process began. It is this cybernetic relationship between evidence and innovation that is described subsequently in this chapter and forms the foundation for the interdependent interaction between evidence and innovation (Porter-O'Grady & Malloch, 2016).

The evidence-based innovator understands the relationship among the firm foundation of principles, protocols, and standards supported by the evidence. At the same time he or she recognizes that this foundation represents only half the work of good practice. The other half of the work of good practice is represented by faithful commitment to the movement from firm principles and foundations toward new, emerging, and innovative practices that produce new technologies, models of care, and clinical activities that advance both the experience and the health of the patient. Furthermore, the evidence-based innovator acknowledges the overriding need for the commitment and engagement of the practice community and represent in their own attitudes and practices a constant mobilization toward the creative, the innovative, and the new as they grapple with the improvement and advancement of practice.

The innovative milieu grounded in evidentiary dynamics provides the kind of context that frees practitioners to discern, debate, and delineate new insights, practices, collaborations, technologies, and configurations for patient care. Rather than being constrained by evidence-based structures and processes, the evidence-grounded innovator represents both the commitment to the rigors of evidence and of the freedom to embrace the generativity embedded in exploring opportunities for enhancement, enrichment, change, and invention. For example, EBP with regard to patient falls, establishes a set of principles and processes that best demonstrate safe foundations for limiting the dangers and risks of patient falls in particular circumstances. These safety protocols establish a consistent floor for the practice of all professionals and generate a standard that influences everybody's action and serves as the foundation of their relationship with high-risk patients. Assuming this standard is in place, the emergence of a new digital device or software that helps practitioners remotely monitor and follow these patients and alerts providers of the potential risks

of falls or compromises in safety, changes the landscape of practice. This innovation, therefore, calls into question existing standards and protocols related to falls and patient safety and asks practitioners to create a new framework or foundation that now includes the application and utility of the new technology in establishing future safe fall-prevention practices. Here, existing EBP standards served as the floor (some would say impetus) for good practice, and the emerging innovation created the challenge for the stretch away from existing practices that caused the need to reexamine and recalibrate evidence-based foundations to reflect the application of the emerging technology. While evidence provided the floor of good practice, innovation created the opportunity to stretch toward a new ceiling for good practice.

Where evidence demands grounding in the rigors of scientific process and analysis, innovation requires an environment that is open, responsive, reflective, challenging, and enabling (Bleich, 2014). The innovative practice leader needs to reflect upon his or her skill set regarding the capacity to be responsive, discursive, flexible, and challenging. Both the discipline of evidence and the requisites of innovation require the leader to create an environment in which practitioners can fully experience their autonomy and represent it in patterns of practice that are themselves open, discerning, discursive, responsive, and collaborative, representing a sustainable culture of innovation and creativity. Indeed, the environment must be truly professional, representing a full engagement of the professional practice community in both defining the foundations of its practice (evidence) and exploring the rich possibilities of the future of practice (innovation). More often than not, organizations that have embraced shared governance and the Magnet Recognition Program have demonstrated the best partnership between organization and profession. The mutual commitment between healthcare organizations and healthcare professionals to affirm the foundations of good practice (evidence) and advance the interests of excellence and creativity (innovation) serves as the best frame for sustainable positive impact on the patient healthcare experience.

None of these dynamics or practices can be sustained, however, without an appropriate context and infrastructure that provides the medium for assuring fluid and meaningful movement along the evidence–innovation continuum. Just as shared governance assures autonomy in professional practice and creates a structure that advances the ownership of each professional in his or her own practice and in the obligations of the profession, the evidence and innovation relationship needs good structure to support it (A. Brown, 2014). As in all human activity, there is an overarching need for a strong interface between structures that create the vessel supporting action and a process discipline that provides a rigorous yet progressive vehicle for advancing practice, adapting to change, and creating the new and different. This model further provides the essential interface between evidence and innovation that accurately enumerates the action of each in the contribution of both to advancing good practice and to improving the nation's health care.

THE CYBERNETIC MODEL FOR EVIDENCE AND INNOVATION

A model that is cybernetic demonstrates an approach to systems analysis that describes its elements, characteristics, and relationships within a closed loop structure that continually feeds back upon itself (Paul, Muller, Preiser, Neto, & Marwala, 2014). These cybernetic structures are dynamic and in continuous movement, where in the relationship among each and all of its constituents is continuously interacting. This dance of interaction describes the life of the system and shows how that system functions and interacts in a way that creates meaningful emerging and growing change. This same cybernetic infrastructure operates in the relationship between evidence and innovation, demonstrating their inherent interface and the part each plays individually, and with and upon the other in a way that advances and changes practice.

Discussion

The PPACA created a catalyst for fundamental changes in healthcare transformations. The convergence of sociopolitical, technological, and economic forces evidencing the need for change in the American healthcare system created the conditions that make existing models of care decreasingly relevant or useful. As a result, healthcare leadership was stimulated (some would say required) by the demands for deconstructing a volume-based system and creating a value-based system. Embedded inside the demand for change was the need for the inclusion of new healthcare infrastructure, technologies, delivery models, metrics, and person-centered clinical approaches. All these emerging demands and opportunities have forever and radically shifted the foundations for building the future of health care.

In these circumstances, how did the PPACA act as a catalyst for shifting your own organizational and clinical foundations toward new service structures and clinical practices? How did the architecture of your health system change to meet the demands of the more person-centered and mobility-based care delivery system? What personal impact has the catalyst of the PPACA created in your own practice and service delivery?

Gather a team of four to seven colleagues and explore the following questions:

- What are the short-term and immediate shifts in clinical practice that must occur now as the foundations for future service changes?
- What kind of clinical partnerships will need to emerge in order to address a more integrated and bundled model of clinical service for episodes of care, populations, and the continuum of care?
- How do you communicate the demands for changes in clinical practice and the need for innovating approaches to health service delivery to colleagues and clinical partners in a way that helps them engage necessary changes?

Context describes the frame within which all action and change occurs in a cybernetic process. Although the process is a closed-loop dynamic, it occurs within a larger environment in which the forces that create the conditions for change are in constant flux. This vortex of continuous, cyclical, and dynamic interaction at the environmental level creates the landscape within which organizational and individual action unfold. In human dynamics, there is a constant interface between sociopolitical, technological, and economic forces that are interchangeably congruent and discordant and create the conditions within which the agents of change operate (Porter-O'Grady & Malloch, 2010). At times in this complex environment, these sociopolitical, technological, and economic forces converge to create conditions that require a concerted response and force communities and individuals to address their impact and give substance to their actions. This is no less true in the relationship between evidentiary dynamics and innovation. Here, as at any point of convergence in response to the environment, the aggregation of the evidence provides a critical demand for change and transformation in the structures, processes, and impact of human activity. In health care this means that the complex dance among health system, provider, and user (including individuals, populations, communities, and society as a whole) requires a constant awareness of the impact of these broad environmental forces that are particular and specific in order to grow, improve, and advance change—in short, to innovate (Schartinger, Miles, Saritas, Amanatidou, & Giesecke, 2015).

THE CYBERNETIC PROCESS AND RISK AS FUEL FOR EVIDENCE AND INNOVATION

Much of the energy fueling EBP comes out of the significant knowledge deficit and wide variability in clinical practices in nursing and other healthcare professions. This wide variability creates a high degree of risk. Further, variability implies a wide latitude of permissible behavior that fails to reflect and demonstrate already well-defined parameters for safe and appropriate practice in a wide variety of clinical settings. This variability is perhaps one of the most concerning in dangerous aspects of nondefinitive care practices that result in high patient risk every year.

These gaps in professional practice create not only a high degree of risk, but also questions with regard to exactly what practices are appropriate, meaningful, and viable. The assumption is that we know little about which particular foundations produce or influence specific outcomes. The truth is, however, that we know much more about these relationships than is often evidenced in the wide variety of practice settings across the nation. This lack of a uniform, disciplined, and aligned set of foundations for practice that are clearly and specifically enumerated across institutions and environments is not only a great threat to effective health care but also provides a great opportunity for healthcare leaders (Kaplan, Witkowski, Abbot, Guzman, & Higgins, 2014).

The development of an organized and systematic approach to managing knowledge is a critical effort to actually successfully handling it. Knowledge regeneration and application approaches require a comprehensive framework that can be used regularly and stands the test of time. Not only that, the model or approach must be able to adapt to the continuing influences that unfold in the environmental, developmental, strategic, tactical, and priority setting activities of systems and people today, especially in this digital, value-driven age. There is a fundamental demand to assure that there is a strong cause-and-effect relationship between action and consequences. The value equation requires that there be a meaningful relationship between the actions undertaken and the impact desired. This critical relationship defines the constant focus and activity of clinical leadership as they begin to unfold, first, foundations that ensure a set of solid principles that ground clinical action and, second, the capacity to change practice as quickly as the evidence indicates a need for change.

Because of the activities that must be centered at the point of service, organizational support structures and activities that enable this point-of-service locus of control must be designed in a way that assures that practice is nimble, fluid, and flexible. Ownership of the obligations of practice must be deeply embedded in the practitioners. This ownership must be evidenced by their capacity to make decisions, take action, evaluate impact, and change actions quickly to accommodate the need for accuracy and relevance. The further away from the point of service the decisions related to these activities are made, the slower the response time, the greater the opportunity for error, and the less likely that the response will be accurate and appropriate (Cristofoli, Markovic, & Meneguzzo, 2014).

In addition to the need for point-of-service driven responses is the requirement for increasing the accuracy and veracity of clinical action and data. The more specific and detailed information is with regard to the appropriateness and viability of clinical activity, the more useful it is. The ability to assess metrics specifically and clearly is critical to determining their veracity and impact on the patient experience. Also, the clarity of specific actions help define in a uniform and precise way how those actions perform. Furthermore, as we become clear about the performance of specific clinical actions, we can also get a stronger sense of the interface of those individual actions with other related actions in a way that helps us assess the comprehensive impact of these interfaced and related actions. Keep in mind that from the patient's perspective, that interest is in impacts and outcomes on the patient experience. The patient is generally unaware of the particular and unique activities of any one discipline or provider. The patient is aware, however, of the impact of the collective action of all providers on his or her clinical experience. Therefore, it becomes critical that clear and specific clinical behavior enumerated by any one discipline be strongly correlated, linked, and integrated with activities of other providers in a way that demonstrates the comprehensive impact of the collateral and collective contribution of all providers. This is

a fundamental characteristic of the cybernetic process. It is also a central element of good EBP management and demonstrates the essence of seamless patient-centered care (Davis, Mahanna, Joly, Zelek, & Riley, 2014).

In addition, any cybernetic evidence–innovation model requires that the intersections and relationships among components demonstrate a flow of effort that is progressive, reflects the value of each component in subsequent steps, and ultimately demonstrates the seamless interface between each component. This must occur in a way that creates a systematic approach to addressing knowledge creation, generation, application, evaluation, and adaptation. Furthermore, it is essential that the innovation process be applicable at any stage of the cybernetic process so that whatever variables or variances that require particular responses can be addressed in those places where action is necessary. Here again, the more specific and particular the application is in each phase, the more utility it demonstrates in addressing the particular issue at a given point in the cybernetic process. Such a cybernetic model must also have embedded in it the flexibility necessary to adjust and adapt timing, intervention, dramatic environmental shifts, or the products of evaluation in a way that moves to quick resolution and sustainable solutions. The cybernetic process must also be understood and have high utility at the point of service where practitioners of all kinds can use it, understand its application to their own practice, and tease out its mechanisms and use them as a vehicle for assessing and adjusting their own practices (Yolles, 2010). In short, the model must make sense and have a high degree of utility in the practice environment. At the same time, it must be relevant to the organization at large and useful at the senior levels of the organization where environment and system meet, providing an opportunity for the system to make the same kind of adjustments that are expected to be seen in practice decisions at the point of service.

CYBERNETIC EVIDENCE AND INNOVATION MODEL

Models serve as a composition of integrated and interacting concepts and elements. The use of models helps both capture and encapsulate whole notions that are comprised of particular elements, components, and phases. A cybernetic model demonstrates the action of the integration and interface among elements and components of the model, how they relate and interact, and how they feed back upon themselves to contribute to the dynamic (cybernetic) nature of the model. This modeling lends itself well to the evidence–innovation continuum insofar as it enumerates their essential relationship, the characteristics that lend utility to processes and applications of EBP, and the innovation enterprise.

In the case of the evidence–innovation cybernetic model, the forces driving human activity—enterprise, social, political, and economic—create the contextual framework

for all the activities influenced by and responsive to those environmental forces. These forces can be seen as a series of continuous winds that blow out of the broad contextual environment that influences human action and creates forces that require a specific response in a particular way, as evidenced in human action and continuous change. The degree of effectiveness of the action and change is directly related to the goodness of fit between the character of the forces (our so-called winds) and the impact of the action. This impact is visualized positively by resulting enhancement, improvement, change, or innovation. Because these winds are constantly blowing and carrying with them the seeds of change and adjustment that is generated out of immediate past and current creative thinking, ideation, formation, or production, they constantly influence knowledge creation and generation, which then initiates the cybernetic cascade through a system. In the case of evidence and innovation, cybernetic cascade begins with knowledge creation, research, and generation, and influences and informs practice, and advances particular expertise. This movement then forms and deepens clinical insights and values, which drives the creation of a strong culture. In the case of health care, it influences service and care, and provides the framework for clinical action, which ultimately creates an impact, outcome, or particular change.

Because this process is cybernetic all along the way, incomplete and unformed notions and actions demonstrate gaps in knowledge creation, generation, and application and require a response if negative results are to be minimized or avoided. Each of these gaps provide the engine for innovation out of which comes new ideas, processes, applications, and products that, when created, enhance, advance, or transform both process and product. And because this dynamic is cybernetic, it continues to feed back upon itself, unceasingly informing and advancing both knowledge and action (**Figure 1-4**) (Porter-O'Grady & Malloch, 2014).

KNOWLEDGE CREATION AND RESEARCH

Structure

Healthcare organizations, to be relevant, are in the knowledge management business. In patient care, it is critical that the most relevant and often most recent technologies, models, and mechanisms for delivering patient services be utilized to compete and thrive in the healthcare arena. Knowledge is, therefore, one of the central critical tools that is essential to the organization's work. The many types of professionals that work in concert related to any particular patient process depend both on their own capacity to generate and use contemporary clinical knowledge and the commitment of other disciplines to do the same. This mutual expectation with regard to knowledge currency, appropriateness, and viability is a critical assumption upon which the disciplines

Figure 1-4   Cybernetic interface of innovation and evidence
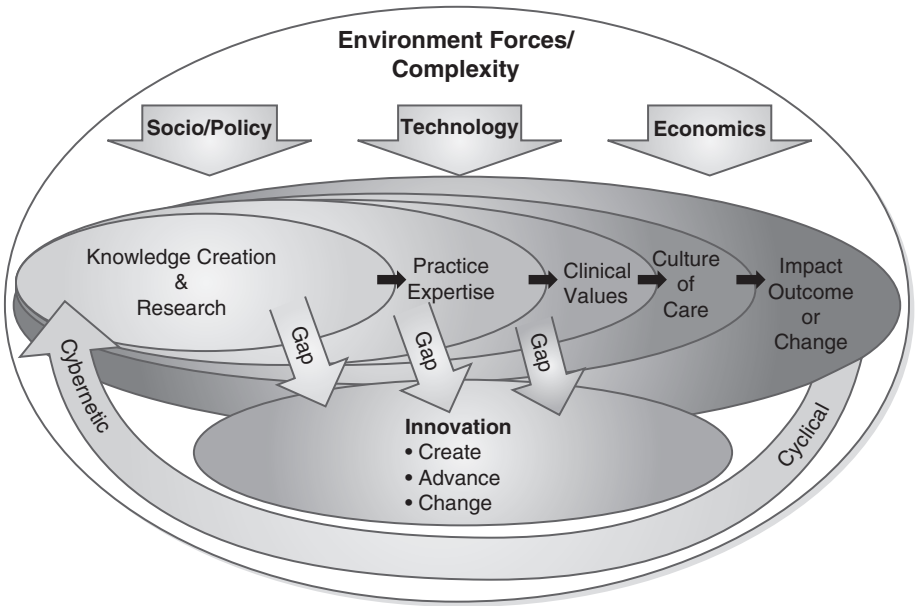
depend to successfully do their own work. Physicians assume that nurses are utilizing the most recent and relevant skills in caring for their patients in a way that facilitates clinical outcomes and positive impact. Nurses, on the other hand, expect that physicians, social workers, physical therapists, and other professionals are utilizing their own contemporary best practices in their roles to advance patient interests and ensure positive outcomes (De Bruijne, 2010).

The truth, however, lies somewhere short of the assumptions made by each discipline regarding its own practice and the practice of others. The precision associated with a tight fit between evidence-grounded best practices and the actual practices of professions does not necessarily demonstrate a strong cause–effect relationship between knowledge and practice. Questions are raised with regard to whether a large segment of practices are based essentially on assumptions, rituals, routines, or protocols that have simply stood the test of time but have never been rigorously validated through close examination that addresses viability and impact. The foundations of EBP over the past decade has raised the specter of how well structured this cause-and-effect relationship is embedded in the healthcare organization's expectations and in the normative practices of each of the disciplines.

Organizations and professions that are committed to relevance and viability recognize that embedded in the structure of the organization and its relationship to the professions must be a framework that makes knowledge creation and management a normative part of the relevant work of the organization. Creative design around laying the foundations of managing the generation, utility, and application of viable knowledge calls the organization to engage its professional members in a way that requires each to commit to a formal process related to the evidence-grounded management of knowledge. Creativity and innovation are embedded in the design of such structures; evidence-based insights and practices are the products of the work undertaken in such a structure.

Increasingly, collaboration among the disciplines in a way that reflects value-based principles and commitment to the Triple Aims of meaningful service, health impact, and price effectiveness are vital in today's environment (Hansen, 2013). Increasingly, the focus of each discipline will be evidenced in the character of the relationship with partner disciplines, the clarity of their interdependence, the specificity of their clinical partnership, and the collaborative and coalescing impact on the high reliability, high viability related to patient outcomes. The historic compartmentalized, segmented, and vertically siloed insulation of the disciplines from each other is not a sustainable premise upon which a viable knowledge management system can be built.

Embedded inside the knowledge management system is the information infrastructure that allows the organization to use just-in-time and highly mobile mechanisms to change and adapt practices in a way that reflects emerging clinical research and new knowledge generation. Many of the associated issues with the management of new and emergent knowledge and its generation and utility, such as big data, electronic medical records, supportive shared governance structures, innovation and failure, and so forth, are related to knowledge that is generated from the innovation process. The relationship between the emergence of knowledge affecting relevant practice and the capacity of practitioners to access and translate that knowledge in a relatively short period of time demonstrates the organization's capacity to innovate. The ability of the practitioners to utilize and apply that knowledge in their own practices demonstrates their commitment to be continuously relevant, current, and evidence-based (Dalkir, 2013). Here again, evidence and innovation are both points of reference along the same continuum. The organization's innovation in this scenario is reflected by well-defined and systematic knowledge management structure and also by functional flexibility and adaptability that stimulate practice change in the face of new evidence. Practice change in the ideal infrastructure can be made easily and fluidly when the emerging evidence suggests that change is appropriate. Gone from that structure should be the long-term, ineffective, and pedantic policy and procedure process. In its place should be an effective, linked, interoperative, and continuous information management

infrastructure that informs clinical team members at the point of service about the products of evidence and research generated by continuous small testing, comparative practices, and intersystem measures of comparative effectiveness. Adapting these mechanisms as a way of doing business creates an effective and useful operating infrastructure that is responsive to innovation, grounded in evidence, and dynamic in application.

These emerging evidence-grounded innovations will require a new compact within and among health professions. The often rote addiction to past practices, rituals, and routines often found in the disciplines must give way to a more reflexive and adaptive model of clinical practice that reflects a basic understanding that change is a fundamental attribute of the work of these professions and that, when validated as viable and appropriate, is evident in the processes and applications associated with that work.

The role of innovation in the evidence–innovation continuum is evidenced by a continuously systematic flexibility and personal adaptability that is apparent when the evidence indicates that there is a need for a change in practice. The trajectory of innovation is always an improvement in practice, a relevant new practice, and the continuous and growing positive impact on individual and population health. While evidence-based methodology is the means to improve and advance practice, innovation is the driver that requires the organization to develop mechanisms and focused testing of evidence-grounded approaches, draw comparisons, build practices based on best practices, and participate in a comprehensive, systematic, multisite undertaking of comparative effectiveness analysis in order to establish strong population-associated best practices (Grant, Guthrie, Entwistle, & Williams, 2014).

Institutional structures and methodologies linking innovation and EBP demonstrate their commitment to effective knowledge management through strong information-based systems that support ongoing research and clinical data management (Quinn, Huckel-Schneider, Campbell, Seale, & Milat, 2014). Fluid and flexible mechanisms, that make information availability and utility a systems characteristic for those delivering healthcare services, are critical components of effective patient care. Here again, evidentiary dynamics and methodologies are the means for assuring best practices, and innovation is the medium that provides the enabling dynamic and impetus for continuously pushing the walls of currency in the organizations and the professions that continuously reach for practice excellence. The innovation framework in the organization stimulates the search for gaps between current practices and the potential for excellence. These gaps create the urge to analyze and examine current practices, products, and behaviors in the interests of refining, improving, or changing practice in the interest of advancing service excellence and health (**Figure 1-5**). It is out of these gaps that true innovation emerges, the results of which are to actually change or create new culture, practices, products, and behaviors.

Figure 1-5   Environment forces/complexity
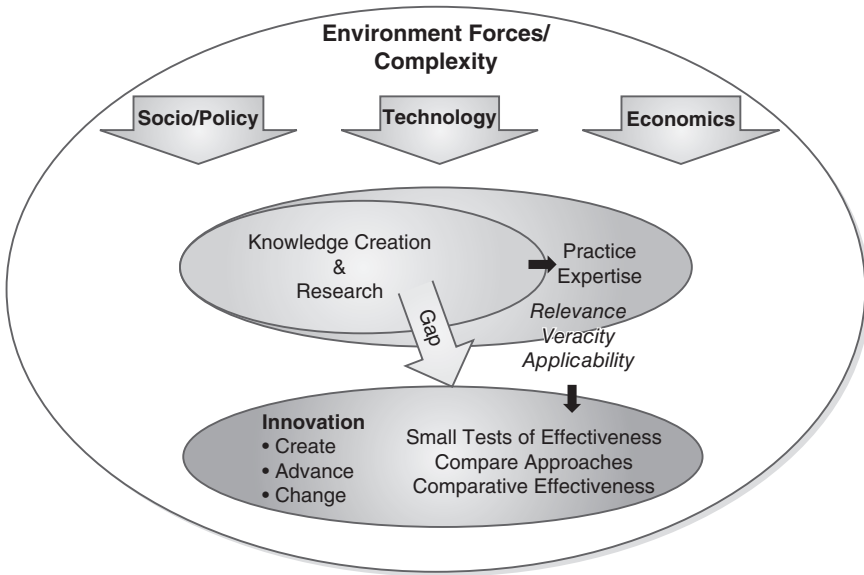
PRACTICE EXPERTISE: TRANSLATION TO IMPACT

Evidence of viability and effectiveness is the constant driver for practice excellence. This continuous and dynamic journey is essentially a disciplined process that represents an intentional yet continuous march toward improvement, enhancement, and change (innovation). As previously indicated, practice change reflects the rigors of good knowledge management, research, and comparative effectiveness processes. At the same time, evidence-based dynamics also reflect the more relational interactional and experiential elements and characteristics embedded in the acts and interactions of practice. While the consistencies and rigors of the science of evidence are the essential platform upon which providers stand to make judgments regarding their practices, the relationships and interactions embedded in the dynamic of practice also provide relevant insights and information that positively or negatively affect the healthcare experience. Issues associated with the more subjective and relational aspects of health service driven by political, social, cultural, ethnic, regional, familial, and personal variables and vagaries strongly influence the viability and sustainability of health. Failure to incorporate these more collateral characteristics influencing the health service experience, quality metrics, and the social, emotional, and financial price of health care can clearly affect its positive viability and sustainability.

Case Example: Innovation as the culture of care

Ben Jones, RN, DNP, is a health system chief nursing officer (CNO). He recognized that with all the changes that are unfolding in the health system while moving toward value-based care and accountable care models, many changes would have to occur in the structures and processes of nursing. He knew that many of the adaptations and changes in practice would have to be driven by clinical and management leadership very close to the point of service. His problem was that the organization has historically been very hierarchical and vertical, with a strong management-driven work environment. This clearly needed to change.

Ben realized that the significance of the change means that a shift in the culture would have to emanate from every place in the health system. He believed that nurses were positioned to provide leadership in making this cultural change because nursing is one of the central activities of the health system. He began to plan for systematically implementing a culture change that would support an environment of innovation throughout the nursing service.

Ben's first issues were as follows:

- Who do I need to include in the initial deliberation and design process to best strategize how we might affect the nursing culture?
- How would the nursing vision and mission need to change in order to give purpose and direction to the shift in the nursing culture of care?
- In a value-driven care model, patients and partners need to be at the table. How do we form this process so discussions and decisions are informed and competent?
- How do we avoid creating a department/office/center of innovation that is isolated and independent from the ownership of innovation at the point of service and engage the stakeholders?

The necessary elements for a structure of innovation are as follows:

- Ben realized, after detailed study, that some essential principles were needed to guide the leadership in their work of creating a culture that supports innovation. These principles include the following:
  - Wherever innovation occurs in a system, it must align with the systems environmental requirements and strategic priorities that guide and direct the innovation choices and actions anywhere in the system.
  - Successful innovation is never driven from the top of the system. Innovation is always generated from the work of the system and best engages stakeholders that are closest to the system's point of service.

- Formal structures must be developed for framing, informing, guiding, and rewarding innovation in a way that makes innovation a normative part of everyone's work and continually engages them.
  - Innovation is a discipline/process. Its various mechanics, stages, and phases can be defined and learned. A dynamic, available, and ongoing innovation learning process must be incorporated into the development activities of the organization so that every stakeholder can access and understand the elements and applications of innovation.
  - Recognition and reward are part of the lifeblood of innovation and must be structured into the dynamics of innovation. This critical element is utilized liberally to sustain energy, motivation, and commitment to innovation.
  - Regular assessment and evaluation of the supported innovation mechanisms and processes in the organization helps determine the viability of the innovation program, the effectiveness of innovation activities, the impact of innovation, and the required needs for adjustment or accommodation to accelerate the effectiveness of innovation.

Ben recognized that if the health systems innovation program is to be successful, particular themes must guide leadership to assure that innovation is viable, effective, and sustainable:

- Innovation is tied to mission.
- Innovation must advance the success of the organization and the individual.
- Innovation is best directed from the point of service.
- Innovation requires recognition.
- Innovation is a team activity. No innovation is successful if unilaterally controlled.
- Innovation is a disciplined process and must be structured into the organization's way of doing business.
- Failure is a fundamental element of all innovation; it must be accepted, accommodated, and even celebrated.
- Innovation leaders must become comfortable with risk takers, brokers, contrarians, out-of-the-box thinkers, actors, and creative noise.
- A system of just-in-time communication, decision making, and movement accompanies the innovation process and requires an immediate response and quick turnaround from leaders and stakeholders.

Within the context of this practice framework, evidence-based dynamics support, indeed require, the inclusion of the collateral and collaborative mechanisms that generate insights, algorithms, and service approaches, experiences, and data that reflect evidence

emanating from sociocultural contexts, population/group history and experience, collective wisdom, tradition, and regional practices (Sarkadi, Sampaio, Kelly, & Feldman, 2014). Keep in mind that the patient brings a set of beliefs and notions about health care, about him- or herself, and about his or her relationship to the world. This informs the patient's interaction with the healthcare system, health professionals, and family. All these elements combine to create a contextual framework for the patient that informs and guides his or her thinking and conversation with regard to personal health and his or her role and relationship with the healthcare system. Much of the concepts associated with this patient-centered dynamic creates the frame for the relationship and interaction among the individual, the family, and health professionals. In addition, the patient brings past experiences related to personal health, his or her health journey, and the healthcare system. All these combine to create the conditions in which the patient and provider meet and operate under the rubric of the healthcare system. This complex array of interactions creates the frame within which all healthcare activities will unfold and guides the thinking, communication, and interaction among all these players (Damie, 2014).

For the care of professionals, evidence for practice expertise generates out of their own history, experiences, gained insights, shared wisdom, policies, and standards. Reliance on these factors is served as the backdrop to much of practice and has created a cultural overlay that values particular traditions, approaches, and practices that define the role of the provider. As the social, political, and technological landscape change and produce a paradigm shift in a way that transforms these experiences within a new set of conditions, many of the traditions and established practices are challenged with regard to their relevance and viability. Still, they have stood the test of time, and dependence upon them have provided some of the impetus and information that has ultimately generated new insights and emerging practices. This historical context creates another frame within which practice is defined, challenged, and changed and therefore must be valued. As it is valued, practice expertise and experience must be incorporated into the evidentiary dynamic as a part of lending insight, context, and wisdom to the host of other evidentiary factors driven by analysis, research, and data synthesis.

Experience too comes with its contribution to the gap between what we have done traditionally and what emerges out of the processes of knowledge management in EBP. Often the connection between practice experience and knowledge management creates the landscape for innovation. Additionally, the convergence or divergence between practice experience and knowledge management creates the catalyst for generating either validation or contest out of which will spawn emerging shifts in understanding and practice. The tension between what is known, what is experienced, and what is anticipated ensures that the evidentiary dynamic continually moves within the individual practitioner resulting in the identification of gaps requiring the need for innovation. The elements of the patient's experience and insights, the provider's clinical practice experience, and the science associated with knowledge management each contribute

Figure 1-6   Cybernetic application of practice expertise
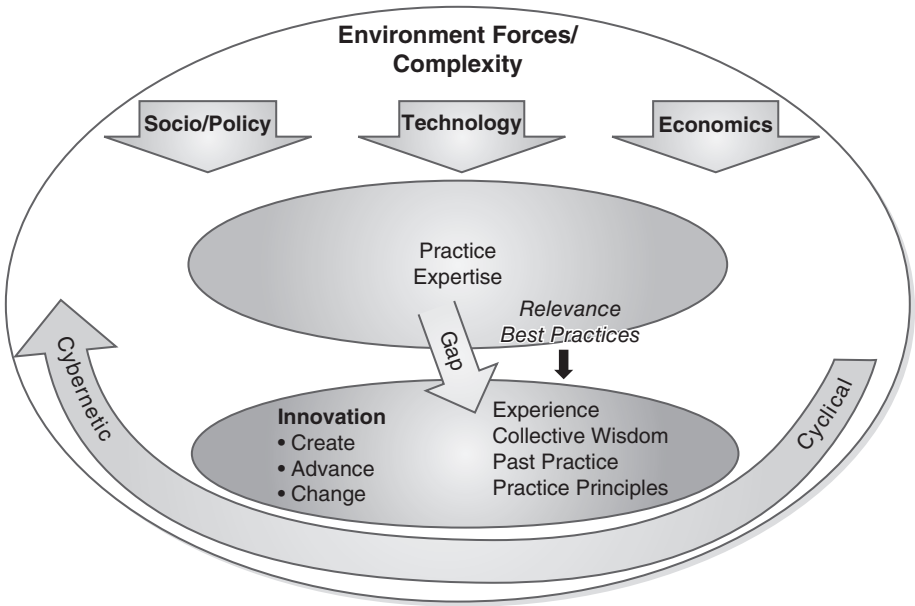
to the other and collectively provide information that, when coalesced, leads to an understanding that enhances the patient experience, improves the quality of care, and effects the economics of service delivery (**Figure 1-6**).

INDIVIDUAL, PERSONAL, AND CULTURAL VALUES AND PRACTICES

Health care is not provided in a sterile, scientific, evidentiary cocoon. Because health service is a human dynamic, it comes with individual, family, community, tribal, cultural, and societal beliefs, practices, and behaviors that have an equally significant impact on the healthcare dynamic, as do the clinical and scientific variables. These traditions are deeply embedded in faith, families, and cultures in a manner that often defines the fundamental characteristics of people in a way that influences who they are and what they do. Along with these characteristics come the personal attributes, tools, and processes they use for meeting the challenges, accommodations, and circumstances of their lives. All these devices are incorporated into health practices

and influence personal and collective choices that ultimately influence individual and community health.

Many cultural beliefs and practices demonstrate some level of evidence about the impact on quality of life and health, but some do not. Yet all practices have some relevance to EBP when they are incorporated into the full range of understanding regarding persons and populations. Aggregating this information with more objective and data-driven sources of clinical evidence creates a composite frame of reference for the healthcare community that guides their partnership with the patient in a way that better informs both patient and provider about what is potentially viable and sustainable in relation to health.

Except for practices that are clearly dangerous or debilitating, evidence-based providers must accommodate in their data integration these personal and communal beliefs and cultural characteristics that more fully inform the caregiving community of all the circumstances that inform healthcare choice making in person-centered best practices. Insightful and culturally competent providers are aware of the synergy between culture and care and find ways to use tactical choices from both arenas in planning and executing the best care approaches. Out of this evidence-based foundation in the partnership among culture and care, personal practices, faith and belief, and healing processes emerge new and innovative paradigms. These new connections or insights, when added to the evidentiary foundations for care, may positively influence the creation of more effective models or approaches to advance health. Indeed, many of these culturally specific health practices may serve as the vehicle for gaining engagement and ownership for science-based, evidence-grounded clinical practices that may have otherwise been rejected if approached solely on their own merits (Napier, Ancarno, Butler, Calbrese, & Charter, 2014).

Discussion

Many cultures provide alternative models or service supports as a part of their caring culture (e.g., doula, promatora, medicine man, shaman, curandera, etc.). As health care moves to more person-centered models and approaches, community, family, and culturally based healing and health support systems will become increasingly important. Partnerships among these various family and community health supports and formally trained health professionals will be critical to build a culture of health and healing.

What kind of different thinking will help professionals bring to the interdisciplinary table other partners and health service delivery mechanisms? In what way is person-centered care different from patient-centered care, and what does it mean to providers? What is your organization doing to expand the inclusiveness of care partners, family, and community and what is it doing to plan for continuum of care services?

In these circumstances the partnership between evidence and innovation be-comes more definitive. Care providers and practitioners from the involved tra-ditions now must meet on common ground to delineate and negotiate the most effective evidence-based choices that can be made within the vagaries and variables of a particular culture. The innovation arises out of this communion between the individual or community and the provider in ways that suggest unique negotiated approaches that both meet the cultural health norms of the user and incorporate the data-driven practices of the provider. This communication and interaction be-tween person and provider demonstrates the best in both evidence and innovation. Evidence demands that both bring to the table a clear delineation of the impact of both culture and data and determine how each serves as a medium for the other in making effective health choices. Innovation, on the other hand, requires that the stakeholders deliberate and determine viable mechanisms or processes that link cul-ture and care in a way that produces positive outcomes and advances personal and/or community health (**Figure 1-7**).

**Figure 1-7   Cybernetic application of patient values**
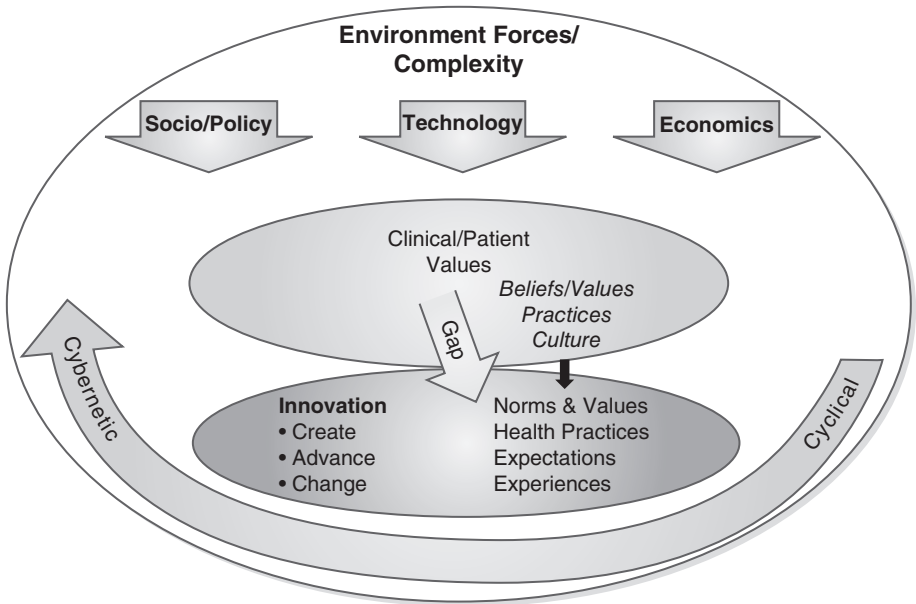
THE CULTURAL FRAMEWORK FOR INNOVATION AND CARE

Innovation is certainly more than the sum of its parts. In every system/organization, innovation occurs because there is both an environment and leadership that generate the context, conditions, and drive for innovation as a way of life (Rivenburgh, 2014). This context provides the vessel within which the vision and values of the system, opportunities for translating vision into action, and commitment of individuals at every level exists as a backdrop to the actions of innovation. Without a particularly definitive context that meets the fundamental criteria supporting innovation, the dynamics associated with innovation simply do not function. Although the contextual foundations are not complex, they are fundamental. When the foundations are not established, innovation is not possible.

Following are some of the critical cultural circumstances essential to providing the frame within which any innovation process is supported (**Figure 1-8**). Herein the relationship between evidence and innovation is affirmed and the continuum that is necessary to sustain both is established and structured as a cultural requirement for each.

Figure 1-8 Culture of care within a culture of innovation

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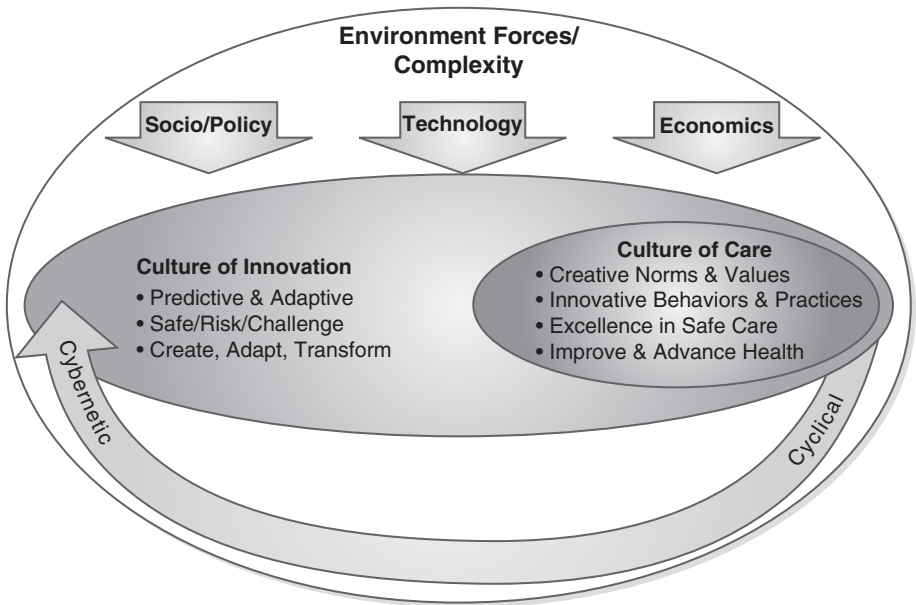
Creative Norms and Values

Leaders who are committed to establishing a strong relationship between evidence and innovation recognize that the organizational culture must demonstrate specific conditions that support innovation as the organization's way of doing business. This means that structure includes processes and mechanisms of shared rules in developing organizational strategies, models of shared decision making, locating the predominant locus of control for decisions and actions at the point of service, and systems of reward for risk taking, out-of-the-box thinking, structural mechanisms that support innovation, and the legal and methodological components associated with the successful processes of innovation.

In addition, leaders recognize the inherent interaction between evidence and innovation, and recognize the indispensable organizational and leadership ingredients that support the associative thinking that links them. These associated mental processes demonstrate the capacity to determine the relationships and intersections among seemingly unrelated interactions, processes, and actions. The structures and culture of the organization and its leaders certify that innovation is embedded in evidence and is demonstrated by organizational members' capacity to merge past practices, protocols, and data generation (all sources of evidence) with different or challenging mental models, new modes of thinking and acting, and new insights and connections, all generated from the evidentiary platform and stimulated by the culture where expectations continually raise the bar (all elements of innovation).

Innovative Behaviors and Practices

Innovation takes life and form at the point of service where 90% of organizational life is experienced. Leaders in innovative organizations recognize that innovation is a collective enterprise, and no successful innovation was ever advanced through unilateral action (Yang, 2015). Culture supporting innovation must give way to behaviors and practices that demonstrate the processes and actions of innovation, ultimately leading to an innovative outcome. After the ground of evidence has been established and serves as the platform for subsequent action, innovative behaviors take precedence. The capacity of individuals to scan and give form to the changes generated out of the environment translate their impact on practice and process and recalibrate their definitive response in recognition of the need for a particular modification/adaptation is essential to organizational sustainability. In a high-intensity environment and milieu of high technological transformation, this innovative cultural overlay becomes an essential driver of organizational life at all levels (Marques, 2014).

Increasingly, of vital importance in this equation in health care is the role of the point-of-service provider. Here this translation from evidence to innovation is

incorporated inside the clinical partnership between provider and patient and forms a good part of the substance of this relationship. Ultimately, viable and sustainable innovations must animate here because this is the predominant arena where health scripts are written and lived. Traditional models of vertical control and rigid hierarchical checks and rechecks along with managerial dominance must be realigned into a much stronger collateral, horizontal, and collaborative organizational calibration. Contemporary and mature operating models that promulgate a more adult setting of organizational membership, mutuality, engagement, and ownership, provide exemplars that demonstrate the essential context within which innovative behaviors and practices are stimulated (Nicoletti, 2015). Much of the content of this text includes a focus on the importance in the development of leadership in facilitating the dynamics of innovation.

Excellence and Care

The notion that EBP is demonstrated by rigid parameters, standardization rigidities, deterministic protocols, and judgment-eliminating routines is simply untrue. EBP is grounded in good science and methodology, validated clinical practices, and data-based practices. These characteristics provide the firm foundation that comprise the floor of good practice. In short, they establish the universal platform—measured, analyzed, synthesized, and clarified—upon which all providers stand. However, it is on this evidentiary foundation that the actions of innovation generate. From this place of clarity, the processes of innovation, discernment, creativity, insight, collective wisdom, and clinical practices moved to new heights. Again, evidence establishes the floor of clinical practice, and innovation reaches for its ceiling. Innovation efforts are not simply the act of trying something new, they are the practices and efforts that continually expand the foundational floor of practice and require the same research, diligence, refinement, and scrutiny that is afforded to the EBP process. This is how the discipline of innovation will impact care, practice, cost, outcomes, and organizational structure for better health.

Excellence and best practice is the goal of both evidence and innovation, yet they play different roles. While evidence validates the veracity of the foundations of practice, innovation challenges us on the trajectory toward excellence, obtained through transforming mental models, dialogue and discernment, creative design, and small yet transforming tests of change (Hildrum, 2014). Out of this partnership come new models and methodologies that advance health partnerships, practices, new approaches, and improved service and clinical outcomes. When linked, evidence and innovation together provide the urge for improvement, transformation, and changes in structures and practices that advance the interests and conditions of health for people, populations, and society.

Improving People's Health

No activity in health care has meaning or value if it does not ultimately positively affect the health of those to which it is directed. All the methodologies, practices, and processes that exemplify high levels of service and care are pointless in that there is not a net aggregated positive impact evidenced in continuous evolving and improving levels of health. Evidence-based data suggests definitive, viable, and safe foundations for health; sustainable innovation suggests a continuous trajectory toward ever-increasing levels of excellence that advance health.

There is clearly a sufficient indication of the history of healthcare providers' addiction to trendy or catchy initiatives associated with notions of potential improvement in clinical processes or outcomes. If most of these notions actually demonstrated veracity in transforming sustainable improved outcomes, we would by now have seen a significant inverse trajectory in our contemporary quality–cost equation in American health care. Not only is there a powerful need for a frank and unambiguous framework for health improvement, there is also a need to establish regional and national standards of practice measurement and payment that reflect the definitive data generated from sound EBP and well-validated service and care innovations in the American healthcare system. Contemporary and prospective changes in the value-based effort at bundling care and payment around best practices for episodes of care, specific populations, and communities of care provide strong hope that the definitive and normative practices directed to improve and advance health can be more clearly established and their impact on advancing health more specifically demonstrated (Huang, 2015).

The emerging emphasis on creating networks of health service that will now operate across episodes, populations, and communities gets us all closer to the potential to truly improve and advance health. Besides connecting a particular array of health partners around specific episodes, populations, or communities of health service, the communication and interaction among them will help advance role clarity and contribution to health care. Out of these communities of practice and health partnerships will come growing opportunities for using evidence-based methodologies and approaches to defining healthcare common ground and creating new opportunities for innovating relationships, interactions, processes, and the products of health care. There are most clearly gaps across the continuum of health that require innovation and evidence to close.

Culture and Sustainability

Leaders of evidence and innovation must realize that their predominant role is in creating a supportive culture and structure that sustains EBP and the processes of innovation. This means more than simply establishing continuous (some say endless) initiatives that drive one or many elements of change. Over time, organizations and

their people become weary of initiatives. The gimmicks and incentives necessary to generate sufficient interest become increasingly more extreme and ridiculous. Organizations, like all systems, are highly complex and dynamic structures in which the many agencies and forces converge to create the conditions and culture within which people work. The effective leader recognizes the necessity to create a synergy among all these agents whose converging effort is a central constituent of meaningful growth and change (Malaina, 2015). Driven by the organization's values and commitment to advancing health and accelerating the healthcare experience, a clinical leader assures his or her own commitment to discipline-specific measures of excellence. These leaders also recognize a solid and generative interface between the action of individual, discipline, and healthcare partners. This culture of personal and professional accountability, partnership, and shared obligation for health becomes the decisive framework for all choices and actions exercised by organizational members.

In evidence-grounded innovative organizations, the leadership capacity of alignment becomes an increasingly important skill as health systems recalibrate their structures and cultures inside of a value-driven health service environment. The convergence necessary among all stakeholders provides a requisite for leaders to assure that their roles, skills, capacities, relationships, and contributions reflect an alignment and synergy that, upon examination, have a specific and conclusive impact on the quality of health service and the net aggregate level of health. There are many activities that can be associated with improving advancing health service. For the leader, the issue is whether these individual sets of activities, when coalesced around patients and users, are integrated in a way in which the impact is substantive and clearly apparent in the positive results on health service and on a healthy community. If this develops into a healthcare way of life and the provider's way of doing business, it becomes the best evidence of the presence of an effective, supportive, and sustainable culture of care. Without the alignment and coordination of innovation activities, leaders risk further fragmentation, one-off solutions, and disconnected systems and practices that could negatively impact the organization and the care provided to individuals.

CYBERNETIC INTERFACE OF INNOVATION AND EVIDENCE

Innovation is meaningless unless some change occurs. It is informed by purpose, which drives in the center of the innovation process and keeps the activities associated with it focused and directed. The innovation trajectory includes a series of stages that enumerate its various processes, all of which lead from idea to outcome. All innovation begins with the mechanics, metrics, and measures that provide the evidence that serves as the basis out of which any innovation generates.

Evidence and innovation reflect two ends of the same continuum. Grounded in solid metrics, research, culture, and practice, evidence provides the rationale and reason supporting the foundations that indicate the appropriateness associated with the potential trajectory toward innovation represented in any transformation, change, or new product. Elements of the cybernetic process operate across all of its components from knowledge creation, practice expertise, clinical values, culture of care, and impact, outcome, or change. The dynamic itself is always creative and reflects a cause-and-effect relationship demonstrated by a forward advance and resulting in some meaningful and viable change.

Driving each stage of the continuum is a relentless and faithful execution of all the components of the trajectory from vision and values, culture, leadership, data and evidence, process movement and measurement, and finally to the innovation; either for a new product or a transformation. Because the dynamic is continuous and cybernetic, the outcome or product reactivates the knowledge process and the metrics and measurements associated with evaluation of effectiveness and the impetus for the very next thing (Nan, Zmud, & Yetgin, 2014).

As the cybernetic cycle reengages the knowledge creation and generation phase, it further stimulates the organization to look at its own characteristics and culture to demand further assessment of the synergy among its culture, its processes, and its impact on transforming health or producing better means for doing so. This assessment is multilateral and multilayered—multilateral insofar as it involves all agents, components, relationships, structures, and functions in the organization at each level of operation; and multilayered because evaluation addresses decisions and directions from governance to the point of service measuring their effectiveness and synergy at every intersection and interaction in the organization (**Figure 1-9**).

It is at this stage that the entire dynamic is viewed as an integrated whole. Questions related to the efficacy of each of the components in the synergy of all of them is a part of the evidence–innovation continuum and the tools and processes that move the system seamlessly among them. Here questions are related to the effectiveness of the cybernetic process and help drive evaluation of its utility and value:

1. Does the trajectory of the organization tightly reflect the demands and characteristics of the environment within which it exists and thrives?
2. Are the strategic priorities for health consistent with the needs and demands of the community the organization serves, and does it advance its level of health?
3. Is the culture and the character of the organization designed and supported in a way that encourages point-of-service ownership of decisions, actions, evaluation grounded in EBP, and driving innovation?
4. Do the organization and its providers demonstrate a high-level degree of partnership with patients, users, populations, and the community in advancing the health of all?

Figure 1-9   Cybernetic integration of innovation & evidence
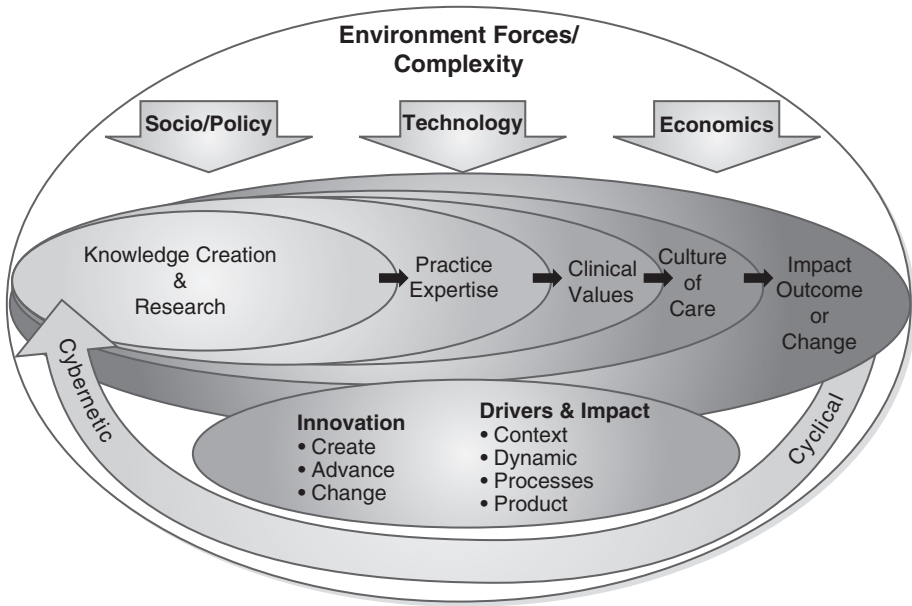
5. Are the values, beliefs, and cultural characteristics of patients and communities incorporated into health relationships and the practices of providers and their partners?
6. Is the health system faithful to its proven and validated evidence-based disciplines and processes, and can it demonstrate improvement and advancement of health as the product of its work?
7. Is the health of the community improving, and can the health system demonstrate a direct relationship between its own evidence-based pratices and innovation?

THE KEY: LEADERSHIP

Most leaders are disappointed by their capacity to stimulate and sustain long-term innovation. McKinsey and Company, in a recent survey of senior executives, found that 65% of them were disappointed in their capacity to stimulate real and sustainable innovation (Barsh, 2008). Although innovation has its unique characteristics, it is still a

fundamentally human activity. To understand how to succeed in innovation, leaders need to know what it takes to create a solidly evidence-grounded, successful innovation process.

Innovation, like EBP, is essentially a discipline. It has elements and components, phases and stages, and processes and activities, and it is continually evaluated and adapted to reflect constantly changing realities. Through explication of the cybernetic interface of evidence and innovation model in this chapter, we have specifically pointed out how systematic and cyclical the continuum of evidence and innovation truly is. We also clearly indicated that if it is to be successful, leaders have to create and support a particular culture that is unique to the dynamics of innovation and requires particular leadership skill sets (Mockhber, Wan, & Vakilbashi, 2015).

A priority for leadership should be the understanding that evidence and innovation must be a structured, strategic priority for the organization. In fact, it must be an organizational way of life—a framework for the way it does business. Evidence and innovation depends on structuring the elements and components of the continuum between slices of the cybernetic model discussed in this chapter. Organizing and structuring the strategic activities of the board from environmental scanning to priority setting should be undertaken in a way that reflects the engagement of all stakeholders, from the boardroom to the patient experience. This high degree of inclusion with the right stakeholders signifies that senior leadership has the capacity to set a diverse table around which key stakeholders engage with each other in the processes associated with laying the foundations (evidence) and pushing the walls to create the future (innovation).

After the strategic framework is constructed in the organization, senior leaders must actively create the structures and processes that find and support the often untapped innovation resources at every level of the health system. These creators and innovators, when enabled, act as catalysts for others in the organization and help create a milieu where evidence, creativity, and innovation becomes a normative operating process. By stimulating the culture of innovation, and facilitating innovators and innovative action, leaders begin to create networks that develop around specific innovations and interface with other created agents generating communities of EBP and innovation that, when linked, exemplify a dynamic, engaged, creative milieu.

When the groundwork is laid for creating a culture of dynamic growth and development, evidentiary foundations, and creativity and innovation, a demand for high levels of trust in the organization emerge. People cannot risk, experiment, or stretch in an environment where they do not feel secure or embraced. Creativity and laying the groundwork for evidence and for advancing the elements of innovation is a noisy generative process filled with uncertainties, experimentation, and risk. Engagement in any of these activities will be limited to the extent that there is a sense of comfort and trust that the organization is a safe place for extending oneself and that leadership will

support the related necessary innovative behaviors and practices. In this kind of environment, members of the organization feel that their efforts are valued, that the system is structured to support the generation and development of those ideas, and that there will be concerted and collective support throughout the cybernetic and dynamic continuum between evidence and innovation (Zia & Khan, 2014).

Ultimately, the commitment to evidence and innovation is demonstrated in how the leader embeds the dynamics associated with EBP and innovation practices in all the ways in which the organization works. The question for leadership is: how are the characteristics and elements associated with evidence and innovation embedded in board meetings, the senior staff priority setting, regular operational meetings, clinical standards and practices, discipline-specific and interdisciplinary meetings, deliberations, councils, point-of-service models of care, interdisciplinary interactions, and so forth? How do the new models of value-driven transdisciplinary and patient-centered health service delivery demonstrate the ownership and engagement of key creative stakeholders at the point of service? And finally, in truly innovative organizations, how do structures and infrastructure continually support a culture where the engagement of evidence and innovation is the prevailing organizational frame of reference.? The expectation of every member in the organization is that he or she is a part of a continuous innovation dynamic, grounded in evidence and encouraged to continually stretch toward excellence. The ascending determinant of success in all of this will be found in how the health system's basis in evidence, and reach for innovation and excellence results in enhancing the patient experience and advancing the health of the community. Without having done that, none of this will matter.

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