Combating infections at Maine Medical Center: Insights into complexity-informed leadership from positive deviance

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Abstract
A case study of how the organizational change process known as Positive Deviance was used to fight healthcare-associated infections at Maine Medical Center highlights the human and social aspects of leadership in a complex adaptive system. It illustrates that leadership can shape self-organization in a manner that facilitates creative, productive, desirable outcomes. We found influential roles of anxiety, attachment, and relationships in facilitating organizational leadership. We describe how the process of leadership permeated the Medical Center’s hierarchies and networks and reflected emergent power dynamics, which included contemporizing some aspects of traditional managerial authority. The study contributes to the management literature by clarifying the dynamics and qualities associated with change in complex human systems and illuminating what constitutes complexity-informed leadership and how it can be practiced.

Keywords
Complexity theory, healthcare management, MRSA infection, organizational change, organizational leadership, positive deviance

Introduction
What is organizational leadership, and how can it facilitate accomplishment of desirable outcomes? These questions have spurred much research over many decades in management and...
social science, generating theories that reflected the conventional wisdom of their time. Studies of leadership have evolved from an emphasis on the ‘great man’ as leader through contingency-based approaches that incorporated leader, follower, and contextual factors in determining the optimal leader style. Across studies, leaders can be heroes who are visionary, charismatic, authentic and transformational; yet, they can also be ordinary mortals who are effective by being transactional in their approach. There has long been a tendency to confound managers and leaders, in assuming that those with leadership tendencies tend to rise to positions of formal power in organizations (Schneider, 2002). More recently there has been a range of alternative ways of thinking about leadership, including that it can be informal, shared and/or distributed, and that leadership can be viewed as a process that emerges and reflects the tenets of complexity science (e.g. Goldstein, 1994; Stacey, 2007; Uhl-Bien et al., 2007).

Our knowledge of complexity science and leadership suggests that while this literature is of benefit, the next requisite step for increased understanding is research with greater sensitivity and emphasis on the unique characteristics of organizations as social institutions. Specifically, there has been relatively little investigation of how the process of leadership, and the many tensions leaders must negotiate, unfolds to influence self-organization toward creative, productive outcomes. As organizations include elements such as social structure and human agency and its members are affective and reflective, the unique nature of social systems necessitates greater understanding of ‘the messy world of organizations’ (Denis et al., 2010: 67) and the nature of leadership.

Our case study from Maine Medical Center on the organizational change process known as positive deviance (PD) sheds light on leadership in a complex organizational context. The authors approached the research project as an exploratory case study, characterized by open-ended, reflexive observation and a grounded theory approach to building a conceptual framework (Butler, 1997). The case illustrates the human dynamics and qualities associated with change in complex human systems, including changes shaped by power, fear, attachment, and paradox. It also illustrates the complexity concepts of non-linearity, self-organization and emergence. Based on the study, we come to define leadership as the emerging understanding and evolving process of thoughts and actions across individuals, which can influence self-organization toward desirable outcomes.

The paper starts with a review of the literature on complexity science and organizational leadership, followed by an explication of positive deviance and its application within healthcare settings. We demonstrate that although PD has a strong pragmatic orientation, the approach rests on a theoretical foundation comprised of complexity science, the literature on human agency and deviance, and positive psychology. It then proceeds with the particular PD-based initiative we studied, referred to as the ‘MRSA Collaborative’. The next section illustrates three themes that emerged from the case and that inform our understanding of organizational leadership, namely: the interrelated roles of anxiety, attachment, and relationships; the process of leadership across organizational levels and networks; and power shifts that facilitated leadership and contributed to a self-organization toward desirable outcomes; in this case, improved infection prevention practices and reduced transmission of methicillin-resistant *Staphylococcus aureus* (MRSA) to patients.

**Complexity science and leadership**

Advances in complexity science are deepening our understanding of dynamics in systems of many types (Holland, 1998; Kauffman, 1995). A paradigm shift began to emerge in the 20th
Century based on the inability of the traditional Newtonian model of science to explain the chaotic nature of phenomena (Tetenbaum, 1998). Lorenz became skeptical of linear models as he explored weather systems (Lorenz, 1993; Wheatley, 1999), and the findings of Prigogine (1996) on chemical systems in states of extreme instability and Kauffman (1993) on patterns in dynamic systems inspired expanded scholarship in complexity science. From these and other efforts, we learned that complex dynamic systems, a sub-set or type of system, have several properties that defy traditional science. First, complex dynamic systems tend to be path dependent, as they are sensitive to their initial conditions, so that the same force might affect seemingly similar organizations differently based on their histories (Sterman and Whittenberg, 1999); this is in contrast to the emphasis in traditional science on seeking general findings across organizations.

Second, complex dynamic systems may react disproportionately to internal or environmental perturbations. This is called the ‘butterfly effect’, named after Lorenz’s famous presentation ‘Predictability: does the flap of a butterfly’s wings in Brazil set off a tornado in Texas?’ (Lorenz, 1993). This effect suggests non-linearity; meaning that a change might be amplified by positive feedback loops or reduced by negative ones and might not be proportional to the size of the triggering event (Anderson, 1999; Sterman, 2001). Third, complex dynamic systems exhibit a tendency toward emergence or internally-induced change (Mathews et al., 1999; Morel and Ramanuman, 1999). Emergence suggests that each organization’s internal dynamics affect its ability to change in a manner that might be quite different from other organizations.

Fourth, complex dynamic systems do not have equal capacity to adapt and evolve. Highly ordered systems, such as very bureaucratic organizations, tend to fail because of their rigidity; they resist requisite adaption. Highly chaotic systems also tend to fail, as they have too few stable components to buffer them and small forces tend to result in system disruption (Schneider and Somers, 2006). Only complex dynamic systems that are simultaneously ordered and disordered are more adaptable and resilient (Kauffman, 1991, 1993; Regine and Lewin, 2000), and those in which adaptation can occur are referred to as complex adaptive systems. The source of a complex adaptive system’s ability to adapt reflects its capacity for self-organization, which comes from the interdependency and interactions of its parts and the presence of diversity in the system (Anderson et al., 2003; Kauffman, 1993; McDaniel and Driebe, 2001; Stacey, 2007).

Questions have emerged and are presently far from answered regarding the relevance of complexity theory to the social realm; specifically, what is the role of organizational leadership, and indeed does organizational leadership have a role, in the process of self-organization. While the complexity-inspired conception of leadership is relatively new, the relationship between leadership and power has long been ground for organizational theorists, and their insights assist in the development of answers regarding complexity-inspired leadership. Weber (1946) observed that the form of leadership associated with positional power is only one type leadership. Charisma is another type of leadership; it is based on the strength of attraction of the leader and followers, and often defies the organizational status quo. This suggests the role of strong emotional bonds in affecting transformational organizational change. Crozier (1973) focused on the importance of countervailing power, which unlike authority is not formal and must use indirect means; yet, it is the social control that governs the whole. More recently, Schneider (2002) noted that non-managerial forms of authority, many of them described by Jaques (1976), are practiced increasingly in contemporary organizations, as some members must routinely influence others despite not having
traditional managerial authority over them. Schneider suggests that managerial authority matters, but less than it did previously. Courpasson (2000: 142) offers a related but more critical perspective, which is that contemporary organizations are ‘soft bureaucracies’ reflecting ‘flexible corporatism’, in which ‘business leaders mix an authoritarian centralized decision with a soft argumentation’ in order for their power to be viewed as legitimate. Issues raised for complexity-informed leadership include how it interacts between the organization’s formal and informal systems, which highlights the tension between intention and emergence (Stacey, 1995), and whether the new emphasis on distributed, shared power with others is substantive or disingenuous.

A challenge to complexity-informed leadership is that organizations contain elements such as social structure and human agency, for which there are no clear corollaries in the natural and physical sciences. Is the application of complexity theory to the social world inappropriate? Osborn and Hunt (2007: 319) posit that while order might emerge ‘for free’ in a complex adaptive system with self-organization, desirable order is not free; leadership should work toward achieving desirable order without harming emergent processes. Leadership thus has a legitimate role in self-organization (Osborn et al., 2002).

Emerging thoughts regarding complexity-inspired leadership reflect a somewhat different conceptualization of leadership from that of Weber, Crozier, and other seminal theorists. Thus far, developments regarding complexity-informed leadership include that it is about serving as a catalyst or ‘tag’ (Holland, 1995). Complexity-informed leadership influences organizational conditions (Marion and Uhl-Bien, 2001), designs learning experiences (Pascale, 1999) and ‘drops seeds of emergence’ (Hunt et al., 2009: 510). Recently, Uhl-Bien and Marion (2009) and Uhl-Bien et al. (2007) presented a model of three co-existing functions of leadership: the formal, administrative function; the adaptive or informal, emergent function; and enabling leadership, which interfaces between them. Yet, while progress has been made regarding complexity science’s application to leadership, critique has also occurred. Some find that it lacks substantive research, which is needed if the theory is to advance beyond conceptual discussion (Avolio et al., 2009). Complexity-related leadership research has been marginalized as being a new contingency theory, concerned with the fit between leadership and other conditions (Fry and Kriger, 2009).

We offer that our case study of the organizational change approach known as positive deviance contributes to our understanding of the interplay between complexity-inspired leadership and power, and illustrates their roles in shaping the process of self-organization.

The positive deviance movement

**Definition and history**

Positive deviance is rooted in the sociological concept of human agency. Despite members of a society being constrained by social structure and the resulting tendency toward similarity in their behaviors; there is also a tendency for some members to engage in nonconformist or aberrant behaviors, which might then come to transform social structure (Stones, 2009). We find some evidence of this in healthcare in the work of Tucker and Edmondson (2003), who analyzed organizational learning in hospitals and highlighted the potential of a few nonconformists to trigger learning and action on system problems. Agency is more than the effect of the initiator on (passive) others; it reflects a collaborative process of change through social actions (Raelin, 2011).
The term ‘positive deviance’ denotes a particular approach to organizational change (Zeitlin et al., 1990), which reflects three influences. First is the sociological notion of deviance, which reflects variations from formal rules and codes of conduct or informal norms (Warren, 2003). While deviance has been defined by negative reactions to nonconformity (Sagarin, 1985), it can also be characterized broadly to include both the positive and negative reactions and outcomes to nonconformity. Deviance is similar to charisma, in that both concepts represent disruption to a social system that can result in desirable or undesirable outcomes (Dodge, 1985). Positive deviance is deviant or unconventional behavior that has a positive impact (Tucker and Edmondson, 2003; West, 2003). Second, as will be illustrated, is its consistency with complexity science parameters applied to social systems, in which leadership can play an influential role in self-organization (Lindberg and Clancy, 2010). Third, PD reflects the ‘positive’ movement within healthcare (Suchman et al., 2011) and the social sciences, the latter of which ‘focuses on generative dynamics in organizations that promote human strength, resiliency, healing, and restoration’ (Spreitzer, 2006: 306).

Positive deviance has been used to mobilize organizations and communities around such intractable problems as childhood malnutrition, HIV/AIDS, infant mortality and female genital cutting (Mackintosh et al., 2002; Marsh et al., 2004; Pascale and Sternin, 2005; Singhal et al., 2010; Sternin, 2003). PD is based on the observation that in most communities and organizations there are individuals and groups who are positive deviants; their uncommon practices or strategies enable them to generate better outcomes than peers with access to the same resources. Using PD, a community identifies and disseminates these practices. It differs from conventional approaches to improvement by focusing neither on deficits nor best practices developed elsewhere by others, but instead on surfacing and amplifying internally generated successes. PD projects initiate social and behavioral change processes that are sustainable because they are built on the capacity of people to discover and implement solutions that reflect a community’s culture and history. The approach focuses attention on discovering, sharing, and augmenting expertise in the community; creating ‘indigenous solutions’ (Sternin and Choo, 2000: 15) that reflect the path dependence quality of complex adaptive systems.

These points come to life in the quintessential PD story. Jerry and Monique Sternin went to Vietnam in 1990 as representatives of Save the Children, to fight childhood malnutrition. The couple was told by government officials they had to demonstrate progress in six months or would have to leave the country. The Sternins were familiar with PD, a tool used by nutrition researchers to identify poor children in developing countries who were healthier than their peers and the practices that led to their better nutritional status (Zeitlin, 2009; Zeitlin et al., 1990). They postulated that this research tool could be converted to a change process. The Sternins found that while the norm in the villages was to feed children rice twice each day, some families with healthy children fed their children three or four times a day and added fresh water shrimp, crabs and sweet potato greens to the traditional rice diet. Equipped with these discoveries, the villagers, with the Sternins’ help, designed a program to practice the desirable, deviant behaviors, as the Sternins realized that teaching alone would not lead to desired behavioral change. Family members gathered the new ingredients and mothers of malnourished children met and practiced cooking and feeding children the new foods in the homes of the PD families. Within 6 months, two-thirds of the poorly nourished village children gained weight. After 24 months, 85% were adequately nourished (Sternin, 2003). Later study by Emory University confirmed that Vietnamese children in the program villages were well-nourished (Mackintosh et al., 2002).
**Positive deviance and complexity-informed leadership in healthcare**

The use of PD is aligned with the growing movement toward viewing healthcare through the perspective of complexity theory:

Health care is complex because of the great number of interconnections within and among small care systems... Health care systems are adaptive because unlike mechanical systems they are composed of individuals—patients and clinicians who have the capacity to learn and change as a result of experience. Their actions in delivering health care are not always predictable, and tend to change both their local and larger environment (Institute of Medicine, 2001: 63-64).

The potential value of PD in healthcare was first highlighted by Macklis (2001), who emphasized the impact of organizational culture on efforts to prevent medical errors. Healthcare professionals who embraced this perspective triggered the first applications of positive deviance in hospitals. The issues they tackled were medication reconciliation (proper use of prescribed medications following hospitalization) and prevention of healthcare-associated infections (Lindberg et al., 2009; Singhal et al., 2010).

Positive deviance portends a radically unconventional orientation for healthcare administrators, clinicians, medical professionals, and others. They must learn to appreciate that organizational processes are characterized by uncertainty, ambiguity and spontaneity (Stacey and Griffin, 2005), i.e. it is OK not to know how best to proceed. Yet, aligned with Crozier’s (1973) observation that power depends on the control of uncertainty, such appreciation for uncertainty needs to be married with the belief it is possible to cope well with the uncertainties of complex challenges and to effectively facilitate self-organization.

The positive deviance process is grounded on several beliefs. First, much of the expertise and experience needed for change exist in the organization, and second, change efforts are best led from within the institution by people with firsthand knowledge of its work, history and norms, referred to as making ‘the group the guru’ (Pascale and Sternin, 2005: 2). Third, expertise within an organization is widely distributed, necessitating the engagement of staff from various services, levels and roles. This requires that leaders provide ample time for staff to participate in the PD process and to make sense of their experiences. The central vehicles in healthcare for such participation are ‘discovery and action dialogues’ (DADs), small-group facilitated conversations in which staff identify positive deviant practices, uncover barriers to their use, deal with these barriers, and spread PD practices (Lindberg and Clancy; 2010, Marsh et al., 2004; Singhal et al., 2010; Sternin, 2003).

**The application of positive deviance to MRSA prevention**

A notable example of the application of PD in the United States has been on efforts to reduce the transmission in hospitals of MRSA and infections caused by MRSA. Healthcare-associated infections and the burgeoning increase in bacterial resistance to antibiotics are daunting challenges for all healthcare organizations. According to the U.S. Agency for Healthcare Research and Quality, such infections are one of the country’s most serious patient safety problems (Agency for Healthcare Research and Quality, 2009). MRSA is one of the most prevalent and virulent antibiotic-resistant bacteria and is spread by contact with surfaces, equipment and the hands of healthcare workers. When the bacteria enter the body through a cut, incision, sore, catheter, or breathing tube, an infection can result.
MRSA infections often result in increased hospital stays, higher costs, and patient deaths (Klein et al., 2007).

Relatively simple tactics including hand washing and surface cleaning help prevent MSRA transmissions and infections (Forsha and Richmond, 2007). Yet, policy edicts regarding cleanliness and hygiene do not recognize that changing human habits is very difficult and engaging staff in sustained improvement in infection prevention is a significant challenge (Flanagan et al., 2011). Well-motivated hospital staff might intend to change their habits to reduce MSRA rates, and might believe that they are changing their habits, but their intentions and beliefs are not supported with actual behavioral change (Doebbeling et al., 1992; Pittet and Boyce, 2001; Whitby et al., 2006).

Administrators and medical professionals who used PD in their hospitals recognized that conventional approaches to infection prevention based on linear approaches to quality improvement were inadequate. They appreciated that changing long-standing patterns of healthcare professional behavior and confronting a virulent, adaptable, and readily transmittable bacteria were complex challenges (Flanagan et al., 2011; McKenna, 2010). Drawing upon insights from complexity science, they appreciated that MRSA transmission and infection rates, as well as the patterns of infection prevention practices of hospital staff, are generated by self-organizing processes. While understanding that self-organization cannot be controlled, the PD movement assumes, and its success suggests, that PD affects the parameters shaping self-organization in human systems: namely, (1) the flow of new information; (2) the number and quality of connections; (3) the degree of diversity in perspectives; and (4) power differentials (Anderson and McDaniel, 2008; Stacey, 1996; 2007). The first three parameters have been studied closely in healthcare organizations. Better outcomes for patients have been found when the rate of new information flow is higher, there are more connections among staff, and there is greater cognitive diversity in employee groups (Anderson and McDaniel, 1999; 2008; Anderson et al., 2003; Piven et al., 2006). For those utilizing the PD process for MRSA prevention, addressing these parameters meant, respectively, engaging more staff in the effort, fostering relationships and conversations among participants, welcoming greater diversity of perspectives and experience, and encouraging staff to assume some of the power and decision-making authority typically held by managers and infection control experts (Anderson and McDaniel, 2008; Stacey, 1996) (see Table 1).

We now turn to the PD initiative at Maine Medical Center, which will further illustrate the four parameters and provide insight into the dynamics of self-organization.

**Methods**

**Maine Medical Center and its positive deviance effort**

The site of the study is Maine Medical Center (MMC), a non-profit, private corporation that serves as a community hospital in Portland, Maine, U.S., and a tertiary care center for northern New England. The hospital provides inpatient care for all medical specialties and has a large outpatient care component provided in part through three dozen clinics. MMC’s particular challenge is meeting the needs of its rural community and its poor. The hospital accomplishes its mission in part through its partnerships in collaborative networks, including with Tuft University, The Quality Commons, and MaineHealth (Maine Medical Center, 2010).
Acute healthcare facilities have engaged in several means to improve patient safety and reduce MSRA rates, including the active participation approach (Jones, 2008). Based on the success of a number of North and South American hospitals in reducing MRSA rates using PD (Awad et al., 2009; Forsha and Richmond, 2007; Lindberg et al., 2009; Singhal et al., 2010), Maine Medical Center initiated a PD-based effort to combat MSRA as part of a national collaborative led by Indiana University and funded by the U.S. Agency for Healthcare Research and Quality.

PD implementation efforts began in spring, 2009 with an orientation for Medical Center leaders and interested staff. This was followed by the identification of three pilot units: the inpatient oncology unit, the inpatient nephrology unit, and the inpatient dialysis service. In August, 2009 interested staff from these units and from hospital departments that relate to these units (environmental services, patient transport, laboratory, rehabilitation, radiology, and organizational development) were exposed to the basics of the PD process and were trained in PD and discovery and action dialogue facilitation by two external PD coaches, one of whom is an author of this paper. The DAD process, an important element of PD in healthcare, was developed to accommodate the busy and ever-changing schedules in hospitals, and entails short facilitated small group conversations designed to engage staff and tap into their expertise. Facilitators ask participants to identify PD practices and barriers to their use, generate new PD practices, and explore means for expanding their use. The MRSA Collaborative, the team of volunteer staff members from the pilot units and multiple hospital departments that guided the effort, was formed and began meeting for an hour each week.

Volunteer PD facilitators from the Medical Center began holding DAD sessions with staff from the pilot units and related departments in fall of 2009; and they continued through 2010 (see Table 2). In fall, 2009 and again in spring, 2010, 2-day visits by the two PD coaches occurred. These visits concentrated on skill development and making sense of the staff’s experience with PD. Discussion sessions and interviews for this research project were conducted in August, 2010. Following these sessions and interviews, in fall, 2010 three new nursing units joined the Collaborative and a decision was made to integrate PD into a major new hospital-wide drive to reduce transmission of all antibiotic resistant bacteria.

Table 1. Consonance between system parameters and the positive deviance process.

<table>
<thead>
<tr>
<th>System parameter</th>
<th>Positive deviance process</th>
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<tbody>
<tr>
<td>Number and nature of relationships</td>
<td>PD seeks to go well beyond the leaders and experts typically selected to guide improvement efforts and engage a much wider network of participants</td>
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<tr>
<td>Rate of new information flow</td>
<td>PD encourages abundant interactions among participants in the large network. PD facilitators are skilled at nurturing open, free-flowing conversations</td>
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<tr>
<td>Degree of diversity</td>
<td>PD seeks to uncover those doing things differently (positive deviants) and encourages engagement of ‘unusual suspects’ (those frontline workers not usually considered experts)</td>
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<tr>
<td>Extent of power differential</td>
<td>Formal leaders are encouraged through the PD process to make it possible for frontline staff to participate actively and play a central role in guiding the effort</td>
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Methodology

The co-authors represent an integrated approach to ‘inquiry from the inside’ and ‘inquiry for the outside’ as has been suggested will benefit organization studies (Bartunek and Louis, 1996; Evered and Louis, 1981). Based on a relationship with a senior nursing leader at MMC, the first author invited the organization to consider participation in a consortium of hospitals engaged in MRSA prevention through PD. As the first author had personal and professional experience with those being studied and was involved with the MSRA Collaborative from its initiation, his role in this study is that of a participant-observer. Yet he is not a strict insider or ‘native’ (Brannick and Coghlan, 2007); his extensive experience in healthcare over several decades, including support akin to fieldwork for PD efforts to combat MSRA in other hospital settings, allowed him a level of ‘outsider’ perspective. He is a Doctor of Management with doctoral studies in complexity science and organizational change, training that causes him to be highly aware of the importance of context, events, and experiences of actors, as is recommended in approaching a case study (Iacono et al., 2009).

The second author is a management faculty member whose broad research interests include leadership and complexity science. She became aware of the MSRA Collaborative at a conference presentation made by the first author and others. Her industry experience and research interests encouraged pursuit of the project in the form of a case study.

Together, the co-authors illustrate the skill-set needed for qualitative research per Cassell et al. (2009: 517): we engaged in reflection as well as reflexivity, and had the practical wisdom

<table>
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<tr>
<th>Date</th>
<th>Major activities</th>
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<tr>
<td>January 2009</td>
<td>• Maine Medical Center joins national network on MRSA prevention led by Indiana University and funded by Agency for Healthcare Research and Quality</td>
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<td></td>
<td>• Orientation to network and PD process held for teams for 7 participating healthcare organizations</td>
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<td>June 2009</td>
<td>• Leadership orientation at Maine Medical Center to Positive Deviance led by two external PD coaches</td>
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<tr>
<td>August 2009</td>
<td>• Orientation to PD process and training in PD facilitation for members of MRSA Collaborative and interested staff by external coaches</td>
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<tr>
<td>October 2009</td>
<td>• PD coaching visits to support PD facilitation skill development and help staff make sense of experience to date</td>
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<td>• Discussions initiated with two outpatient dialysis centers about joining Collaborative effort</td>
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<tr>
<td>April 2010</td>
<td>• PD coaching visits to support PD facilitation skill development and help staff make sense of experience to date</td>
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<tr>
<td></td>
<td>• PD orientation and coaching session for outpatient dialysis centers</td>
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<tr>
<td></td>
<td>• Discussions initiated with additional nursing units about joining MRSA Collaborative</td>
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<tr>
<td>August 2010</td>
<td>• Interviews conducted for article</td>
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<tr>
<td>September 2010</td>
<td>Three new nursing units join Collaborative</td>
</tr>
<tr>
<td>December 2010</td>
<td>• Effort begun to integrate PD process into organization-wide effort to reduce transmission of all antibiotic resistant bacteria, not just MRSA</td>
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or ‘phronesis’ to be pragmatic and understand the context-dependent nature of the study. We approached the Maine Medical Center MSRA Collaborative as an exploratory case study, characterized by: open-ended, reflexive observation; contextual analysis; and a grounded theory approach to building a conceptual framework within the richness of the case context (Butler, 1997). While an ethnographic approach has been advocated for process studies of leadership (Raelin, 2011), exploratory case study is also appropriate, and was better suited to our training and the timeframe of the research project.

The discussion sessions held at MMC in August, 2010 were led by the authors and were viewed as conversational learning in which participants (in this situation, the authors as well as the MRSA Collaborative members) constructed meaning from their experiences (Baker et al., 2005). The eight discussion sessions involving a total of 24 MMC employees were recorded, and notes were taken while they progressed. Non-recorded conversations occurred during meals and breaks. Names of participants have been changed in this manuscript to protect their identities. The authors also reviewed internal documents and toured involved areas of the hospital, to secure multiple sources of evidence (Yin, 1994).

The MSRA Collaborative and leadership: Insights seen through the perspective of complexity theory

Insights on the relationship between positive deviance and positive deviants

Essential to the success of PD was the effectiveness of the discovery and action dialogue sessions, the seminal means for frontline staff engagement in the process. DADs encouraged participants ‘...to be invited, enticed, seduced, engaged into participating in what could be called a self-inflicted wound’ (Block, in Singhal et al., 2010: xi). Training of DAD facilitators was the focus of considerable attention during the coaching visits. Facilitators were oriented to the DAD questions and their rationale (see Figure 1), and practice sessions were held with MRSA Collaborative colleagues. These dialogues were used to uncover or surface positive deviant behaviors and barriers to their wide-spread application, generate new PD practices, engage an ever-wider group in the initiative, and spur action.

The DAD sessions were instrumental in shaping self-organization; they helped to ‘drop seeds of emergence’ (Hunt et al., 2009: 510). Regarding the self-organization parameter of power differentials (Table 1), training emphasized that leaders and facilitators ‘let go’ of their expert and directive roles and instead ask questions and listen, making it possible for front-line staff to assume greater responsibility for guiding the initiative and engaging colleagues. Role and power shifts proved challenging but were critical to success.

Why was it necessary to create an intervention in which PD coaches facilitated the revelation, development, and institutionalization of the positive deviants’ behaviors among staff? First, we note that positive deviants might not be intentionally or consciously deviant. It is possible that only through the intervention will their deviance be revealed to themselves as well as others. Second, and likely more common, is that intervention is necessary to break the barrier of organizational silence, defined as the widespread withholding of information by employees (Morrison and Milliken, 2000). Organizational silence is fairly pervasive behavior learned by employees; it reflects the belief that dissent is not welcomed and will not be effective (Morrison and Milliken, 2000). Dissent is thought to generate negative outcomes to the dissenter; including being viewed as negative, damaged work-related relationships, and retaliation (Milliken et al., 2003). Dissent, defined as the expression of
disagreement, is viewed as yielding high risk and low rewards (Tourish and Robson, 2006), particularly when it involves circumvention of the chain of command (Kassing, 2009). We found the PD intervention to be a dissent-triggering event. Employees’ newly-found voice included the dimensions of active constructive voice, evidenced by making suggestions and support, and passive constructive voice, as seen by their listening, quiet support, and cooperation (Gordon, 1988).

**Figure 1.** Discovery and action dialogue facilitator guide.
Themes emerging from the study

We elaborate insights related to three themes – anxiety, attachment, and relationships; the process of leadership across organizational hierarchies and networks; and power shifts – that emerged from the discussion sessions and our reflections.

Anxiety, attachment, and relationships. Becoming involved in a new change process, namely the PD approach to improvement only recently introduced to healthcare, was initially anxiety-producing for many members of the MRSA Collaborative. ‘Would it work, would I look foolish to my colleagues, can I do this?’ were among the questions contemplated by Collaborative members as the positive deviance work began. These feelings of anxiety and skepticism were expressed by staff at various levels in the organization and from a wide variety of professional disciplines.

A Physician Leader: I came to it with the same skepticism others did. It was very messy. PD sounds a little hokey. Different from change and leadership I experienced, was trained in… Doctors write orders when they want something done.

A Patient Transporter: Intimidation and fear. This was all new to me. It’s one reason I’ve stayed as a patient transporter.

A Nursing Manager: I… was uncomfortable at first. I’m not a person comfortable with not knowing.

A Project Manager: This project felt a little different from the start. Usually it is pretty clear how things will proceed. PD is messier. I am definitely a left brain person, it’s way right brain. It felt foreign to me.

Almost all participants, regardless of position or profession, spoke in some way about the importance of a relationship with one or two members of the MRSA Collaborative or of membership in the group as a whole as being vital to their participation. ‘Who related to who’ went well beyond what would be considered typical in hospitals. For instance, a laboratory educator had discussions with a nursing manager, and a patient transporter and physical therapist worked with a senior nursing leader. These relationships made it possible for members of the group to deal with the anxiety of a new, untested process; the uncertain and emergent nature of PD; challenging existing norms of behavior; and confronting colleagues and more powerful healthcare professionals when their infection prevention practices were unsafe. The significance of these relationships and the importance of being included as a member of a group were recognized in the formative stages of the initiative by one of the project co-leaders, a senior nursing executive we will call Cheryl. An occupational therapist observed of her, ‘Cheryl has worked particularly hard to make us feel involved, as partners at the table’.

Members of the MRSA Collaborative spoke of relationships at two levels – to one or two other members of the group, including the external coaches, and to the group as a whole. A nursing unit helper said about her relationship with a clinical nurse leader, ‘We’ve been a team since Barb joined. It’s brought us closer together. Barb, I need your help. Karla, I need your help’. In the words of the project co-leader, ‘You gotta have supportive backup. You’ve gotta have some level of coaching backup when you’re on fire… I’m with ya. You can really feel alone out there’. A nurse observed, ‘It was awesome. I wouldn’t have worked with so many people. Now it’s the culture for us. When I have a problem, [it’s] Janice, what do you think, Larry, what do you think?’ In commenting on the role of the MRSA Collaborative,
one front line member said, ‘I come to these meetings and feel charged up. I go out and feel I have to do something’. Another member, in response to a question from one of the authors about where he found expert help on the project replied, ‘The group as a whole. Knowing I can come back to the team and not just face it on my own’.

Together these reflections provide evidence of the self-organizing process occurring among members of the Collaborative. Relationships were developed through the decisions and action of members; they were not the result of a detailed management plan. We witnessed new relationships and greater diversity in the connections; which, as is elaborated in the complexity-informed research on healthcare organizations, holds the potential for producing different and better emergent outcomes (Anderson and McDaniel, 1999, 2008; Anderson et al., 2003; Piven et al., 2006).

One of the strong relationships to emerge in this effort was between a young physical therapist and an older, experienced occupational therapist. Their actions proved to be a turning point in the initiative – demonstrating to MRSA Collaborative members that organizational change can be stimulated from the front line. Janice, the physical therapist, and Cathy, the occupational therapist, together conducted multiple DAD sessions with 70 colleagues in the Rehabilitation Department. A strong, repeated concern raised in many of the sessions was the impossibility of adhering to the Medical Center’s policy on gowning, gloving, and hand washing when ambulating a patient with an infection outside the patient’s room. This policy required that the gown and gloves put on while caring for a patient in the room be removed at the threshold of the room, and that hands be washed and a new gown and set of gloves be put on again at the threshold, before entering the hallway. This meant relinquishing all contact with the patient. The therapists pointed out that their patients often had poor balance and were very weak, and had to be supported continually or they would fall. Janice described the issue:

Policy requires we take our hands off patients; we can’t do this safely. Face dilemma; face safe patient handling or following policy. When observed, we were called on it. It’s a policy, [we] can’t change it. This is what happened for several years. Most of us blatantly ignored the policy, but didn’t like this.

Efforts had been made over the years by the rehabilitation staff to have the policy modified, but to no avail; an example of the complexity concept of path dependency. Janice and Cathy continued to engage in their deviant behavior, in violation of policy, but remained silent about it. Janice is a young and ambitious person; she feared that outing the policy violation would have negative impact on her reputation and hurt her career, which are typical reasons for organizational silence (Milliken et al., 2003). She described the dilemma she faced as a member of the MRSA Collaborative: ‘Oh my word. I’m going to tell...everyone above me that we don’t follow your policy’. She did raise the issue in a direct manner at one of the Collaborative meetings attended by one of the paper’s authors. During this meeting, members of the Collaborative complemented her for her courage and honesty. According to Cathy, people came up to her later and said, ‘You’re not gonna go anywhere with this, it’s how it is’. Janice and Cathy then reached out to a sympathetic infection control person who was willing to come to the floor and witness the challenge of complying with the existing policy. His response was, ‘I get it; this is impossible to follow’. They then worked together to modify the policy; it permitted Rehabilitation staff to decide if they could put on a new gown and gloves without risking the safety of their patient. Janice said, ‘[We had]...a great outcome. The policy was changed in record fast time’.
When this experience was explored during one of their weekly discussions, members of the Collaborative observed that this change in policy demonstrated what was possible. The voice of front line staff was heard and resolved a long-standing problem. It inspired others to share their concerns openly and talk about what was really happening with infection control efforts in the organization. The resulting free-flowing conversation gave rise to new insights and new solutions. In complexity terms, this story is an example of non-linearity: a small action having big impact, and Stacey’s observation (2007) that such population-wide patterns emerge from local, everyday interactions. One could label Cathy and Janice the ‘Lorenz butterflies’ of Maine Medical Center (Lorenz, 1993).

In their research on attachment and separation, Smith and Stevens (2002) explore the physiologic benefits associated with attachment behavior that develops between mothers and infants, a dynamic process they claim stays with us as we mature. The comfort and calmness associated with attachment and the knowledge that it is available through attachment paradoxically enables infants to take risks (crawl further away from mom and experience feelings of separation and anxiety) and enables adults to challenge established norms (which also triggers feelings of separation, isolation and distress). It is reasonable to say that the ability of Janice and Cathy to challenge long-standing policy, which could conceivably have led to negative consequences or embarrassment, was supported by the connection and attachment they felt with each other and other members of the MRSA Collaborative.

As there is paradox in the attachment and separation dynamic, so too there is paradox surrounding the formation of strong relationships among members of the MRSA Collaborative. The very creation of a vibrant, connected group leads automatically to exclusion of others. Not everyone can belong; there have to be outsiders, as Elias and Scotson (1994) wrote. As members of the MRSA Collaborative made sense of their experiences and wrestled with how to engage more people and additional nursing units and departments, they uncovered this paradox – the ‘dark side’ of a strong, cohesive community and the dialectical, equivocal nature of leadership (Denis et al., 2010). A Collaborative member who served as a patient transporter spoke for many when he said, ‘While I love the MRSA Collaborative and cherish my membership, I am willing to mentor a replacement from my department and play a role more in the background’. Another member observed, ‘When we become the only face of MRSA, we become set apart. You may notice that Janice and I don’t wear the MRSA Collaborative buttons (that some other Collaborative members wear). One reason; it sets us apart’. Listening to the discussions among Collaborative members led the authors to conclude that members realized they would not resolve the paradox, but they would keep working on it. Because members appreciated the significance and limitations of strong group relationships, they played with the concept of ‘staying small and getting bigger’ as they worked to expand the Collaborative. They considered the possibilities of rotating membership on the Collaborative or splitting the group in three, with current pilot units partnered with new units. They recognized both the value of diversity (i.e. bringing in new staff members and different nursing units) and the relational orientation so central to self-organization.

Dynamics described in this section that enabled Collaborative members to work with the anxiety and uncertainty related to change also illustrate the order-disorder principle associated with adaptable complex systems (Kauffman, 1991, 1993; Regine and Lewin, 2000). In this case it may be that the principles and practices of positive deviance, such as the central place the process affords deviance and the discovery and action dialogues, offered sufficient order and structure to enable participants to engage in a messy process, one informed by the participation and experience of many; one that by its nature is emergent.
The process of leadership across organizational hierarchies and networks. Linkages of MSRA Collaborative members with each other and with others in the broader organizational context illustrate several of the parameters shaping self-organization in human systems (see Figure 2). As described, the MRSA Collaborative consisted of a team of individuals whose participation necessarily reflected their formal positions in the organization. As one member observed, the Collaborative included people from ‘multiple disciplines, not necessarily normally in a room together’. From their shared experiences, Collaborative participants came to understand and respect each other and each other’s work. The Collaborative increased the flow of new information, the number and quality of connections, and the degree of diversity in perspectives among its members, illustrating many of the parameters that shape self-organization (see Table 1). Emerging from this understanding was an evolving process of thoughts and actions regarding behavioral changes needed to combat MRSA. We refer to this emerging understanding and evolving process of thoughts and actions toward achieving desired outcomes as leadership.

Within the MRSA Collaborative, leaders demonstrated several of the factors, qualities and characteristics that reflect some aspects of the new paradigm described in leadership scholarship. The Collaborative’s leadership was dispersed, fluid, dynamic and spontaneous.

![Figure 2. The MRSA collaborative and its relationships.](image-url)
(Buchanan et al., 2007), implicitly and sometimes explicitly appreciating the self-organizing nature of change. It included valuing and enabling individuals and acting with integrity (Alimo-Metcalfe and Alban-Metcalfe, 2005), so that Collaborative leadership demonstrated concern for others (Fry and Kriger, 2009), including hospital patients.

Yet, leadership within the MRSA Collaborative was also different from new paradigm models to date, including those reflecting healthcare environments. While Collaborative leadership was distributed and evidenced shared direction and purpose, the strong roles of affect and personal support for others causes us to note this leadership was beyond the ‘leadership constellation’ model of differentiation, specialization, and complementarity (Denis et al., 2010). Leadership in the MRSA Collaborative surpassed concepts of leadership as being proximal and reflecting openness and humility (Alimo-Metcalfe and Alban-Metcalfe, 2005); it reflected strong personal connections with others based on shared understandings, developed through shared experiences. We found these personal connections or bonds – which have a strong affective component – to be a very significant and largely unheralded factor in enabling and shaping the process of leadership and self-organization. As Schneider (2002: 218) stated: ‘Leader behaviors ... will encourage interactions and connections, and use relatively intense, positive emotions in so doing’.

One of the fundamental questions driving our research was how those in the managerial hierarchy affect the process of self-organization. We found that executive and middle managers have the potential to influence self-organization in both substantive and symbolic ways. As we have noted, the key challenge for managers was to unlearn traditionally expected behaviors that are associated with their experience and expertise – knowing the answer, quickly offering informed advice, supplying best practices from outside sources – which can inhibit engagement of frontline staff. Through the PD intervention, ‘Leaders changed their view of how to lead’, as was said by a Collaborative member. Yet, the power of those in managerial positions remained substantial and, as will be explained in the next section, evolved in several regards.

Importantly, several collaborative members stated that the CEO’s endorsement of the MRSA project was critical to its success. Clearly his endorsement brought funding and other substantive resources, but it did much more. Members felt that the CEO’s support signaled faith in his people, and this support positively affected their own self-efficacy and the team’s efficacy. There was a sense of pride that the CEO made MMC’s Board of Trustees aware of the PD initiative. Support from the CEO and the Board indicated that the MSRA Collaborative was important and respected, and its members appreciated the support. Cheryl described the roles of the CEO and Board at the project’s initial stage:

The CEO’s endorsement is very important. When he heard it all, he said that this would involve the whole hospital and said ‘I should find the funding for this’. He not only agreed to go ahead and do it; he had great faith that we would do something positive with it. He wanted the entire Board to be aware of this initiative and got it into the Annual Objectives. This is a level of endorsement that goes straight to the Board of Trustees and is very transparent to the Board of Trustees. He wanted them to know that we would try something very different and new about it [MRSA]. Even though they might never attend a meeting about this, their endorsement is critical.

Collaborative members also noted that this support indicated deep commitment to patient safety from the top of MMC, which members found fortified their own commitment.
It was also felt that support from the top helped protect the Collaborative’s members from being penalized by powerful non-members who might view their effort at behavioral change as intrusive, threatening, or inappropriate. In particular, participants commented that executive support gave MSRA Collaborative members the fortitude to address doctors regarding their hand-washing and other infection prevention behaviors. Traditionally, many nurses, other professionals, and non-professionals were unwilling to confront lapses by those who were more powerful. The ultimate sign of success, particularly for housekeeping and other lower-status members, was when a doctor sincerely thanked a Collaborative member for pointing out a lapse in his/her infection prevention practices rather giving the member what a front line worker called the ‘stink eye’; i.e. rolling the eyes in reaction to being corrected by someone of lower occupational status.

Middle managers also played a critical role in the PD effort. First, they served to promote the initial effort and develop the Collaborative’s membership. Middle managers who identified volunteers and extended invitations to reticent colleagues were instrumental in getting the effort started. Second, middle managers served to disseminate evidence-based results of the MSRA Collaborative’s effort to their respective departments, which is part of the PD process, and highlighted the value of the effort in achieving organization goals. By participating in Collaborative meetings, managers signaled – just as the executives and CEO did – that the Collaborative was legitimate, important and respected. Their involvement demonstrated to frontline staff that middle managers ‘stand behind’ their people.

In terms of its professional hierarchies and networks (see Figure 2), hospitals illustrate Mintzberg’s (1979) professional bureaucracy, in which a dominant professional core (i.e. medical doctors) exercises significant power. Professions are collectives characterized by commitment to values such as health progress (Adler et al., 2008). It is thought that ‘The presence of a dominant profession, however, creates tension for the distribution of leadership outside of the professional core’ (Currie et al., 2009: 1745). Regarding power dynamics at MMC, one of the Collaborative’s doctors noted that distributed power can only be pushed so far. As he put it, ‘Doctors write orders; they don’t write suggestions’. Yet, the dynamics of power in the hospital were far from simple, and we were struck by this doctor’s use of declarative statements such as this to belie his strong commitment to the Collaborative’s members and mission. Indeed, he welcomed insights from front line workers and was one of the most engaged members.

Interestingly, rather than being doctor-initiated and led, it was a dyad of senior nursing leaders who brought the PD process to MMC, and one of these nurses and a doctor serve as its senior leaders. Perhaps part of the rational for this is that the role of nurses is patient care, and combating MSRA is rooted in patient care. It is also likely that despite the participating doctor’s assertion of authority, there is significant respect for nurses and other professionals on the part of many doctors at MMC. The context of this particular hospital is one of high employee involvement, and the many accolades it has received suggest that its dominant professional core of doctors tends to view others as joining, rather than strictly following, them as leaders (Schneider, 2002).

Aside from their time with the Collaborative, each member largely worked in the professional capacity of his/her unit or department. We note that their respective professional networks were important means by which Collaborative members practiced leadership. Members’ simultaneous linkages across the Collaborative, the managerial hierarchy and their professional networks served to facilitate both the initiation of new ideas and new practices and the adaptation of ideas and practices from one domain to others. Indeed,
we found that the Collaborative’s plan to extend its initiative to other units rested on the foundation of these professional networks, particularly among its nurses.

Last, in terms of inter-organizational networks (see Figure 2), MMC is involved strategically in many partnerships and networks of healthcare providers. As challenges in multi-sectoral partnerships include differing expectations and managing conflict (Armistead et al., 2007), the orientation of some of MMC’s for-profit partners could possibly lead to discord regarding priorities and processes.

During the interviews, some unease was expressed about initiating the PD effort to combat MRSA in several dialysis centers that are owned by a for-profit organization. Compared to the general population, dialysis patients are at greater risk of contracting MSRA infection, so the MSRA Collaborative viewed its dialysis partner as a next logical step in its outreach. However, there was some apprehension that dialysis center management might be skeptical regarding PD and might be resistant to the non-billable hours of employees’ time required by the PD process. It was evident to us that the MRSA Collaborative knew that gaining their partner’s support was crucial to the project’s outreach, and their insights regarding the partner’s possible concerns would likely be of benefit with this effort. Although it is outside of the scope of our research regarding a particular stage of the MRSA Collaborative, we have learned that the PD effort was supported by the dialysis partner’s management, and there is much activity regarding it.

Power shifts and the emergence of leadership. As Crozier (1973) noted, power is a process that is inseparable from collective life, and no power relationship can be disassociated from the institutional system in which it develops. We found that shifting power relationships did occur, and enabled the broad engagement of staff and open, free-flowing patterns of interaction in the MRSA Collaborative, as is called for in the PD process. A larger and more diverse group of employees came to play leadership roles in infection prevention. The two senior leaders of the MRSA Collaborative extended invitations to interested staff to join the effort. They, in essence, offered to share their power and responsibility with others, and in many cases this offer was accepted. An occupational therapist observed, ‘It’s been so egalitarian’. Another Collaborative member said, ‘Management welcomed me with open arms. It made me feel like I am important’.

This process demonstrates that power arises through a relationship, co-created by those in the relationship; it is not something simply held by individuals and exercised over others (Crozier, 1973). It also illustrates the view of power advocated by Elias and Stacey, in which shifts in power are seen as associated with the emergence of novelty (Elias, 1998; Stacy, 2007). Elias wrote, ‘...to the extent that the inequality in the strengths of two players diminishes, there will result from the interweaving of moves of two individual people a game process *which neither of them has planned*’ (Elias, 1970: 82 our emphasis).

Yet, not surprisingly, this new distribution of power was met with attempts by some to assert their traditional positional power. This was manifest most clearly in the behavior of one former member of the Collaborative who is a manager at MMC. Instead of seeking to understand and explore issues regarding infection prevention raised by front line workers, this individual would press her expertise by citing the latest evidence and insist on compliance with existing hospital policies. Cheryl realized this behavior, if continued, would undermine engagement of front line staff. Indeed, several members of the Collaborative came to see Cheryl and told her they would leave the group if the condescending behavior continued. Cheryl realized the seriousness of this: ‘We’re going down, the most important people are
leaving us’. She acted quickly and asserted her own positional power, arranging for the replacement of this manager on the Collaborative with someone of similar expertise. Undoubtedly, these shifts in power and the reactions to the underlying actions they generated helped foster the widespread participation and interaction PD depends upon.

The development of the revised infection prevention policy recounted in a preceding section and the many small individual acts of Collaborative members (like reminding ‘powerful’ physicians to gown, glove and wash their hands before entering isolation precaution rooms) suggest that shifts in power are related to change and emergence of new patterns of interactions. And because the results of these shifts depend on how others react, leadership emerges from the interactions themselves. This viewpoint is in line with Mead’s (1934) notion of gesture and response, where meaning and change stem from an interactive, iterative process. Both change and the emergence of new patterns are a result of self-organizing processes. The contributions to leadership and changes made by many of the Collaborative members can also be understood through Heifitz’s adaptive leadership model. He and colleagues wrote, ‘People have long confused the notion of leadership with authority, power and influence. We find it extremely useful to see leadership as a practice, an activity that some people do some of the time’ (Heifitz et al., 2009: 24). A front line worker in the Collaborative made a similar point. ‘I am a unit helper on Gibson (her unit), so I am not a leader or manager (there). But going into the MRSA Collaborative, I am a leader...Being...in the MRSA Collaborative has given me the power, I guess’.

Yet, it is critical to note the context and limitations of the unit helper’s power and the role of organizational elites – the board, executives, and doctors – in allowing unit helpers and others to both feel powerful and feel that their power is legitimate. Those in positions of power increasingly recognize the ability of other employees to make decisions; these employees accept the responsibility, but they also accept that there are limits to decentralization (Courpasson and Dany, 2003). More and more, contemporary organizations demonstrate communitarian as well as administrative dimensions, forming a hybrid of democratic and bureaucratic forms of governance, in which authority is exercised through a social or soft means (Courpasson and Dany, 2003), as is demonstrated by the critical role of social and emotional support throughout the case study.

While self-organization at MMC had many aspects of being democratic, some fundamental aspects of it were not. The decision to start the MRSA Collaborative, fund necessary resource allocations, and provide some of the emotional and social support needed to engage successfully in the PD initiative were provided by executives and the Board, although it is also important to note that it was a dyad of senior nursing leaders who brought the project to MMC. This process reflects how executives can utilize others to inform strategic decision-making (Hooijberg and Schneider, 2001). More fundamentally, executives (with Board consent) were the ones who blessed the desired outcomes that self-organization should work towards; namely, improved infection prevention practices and reduced transmission of MRSA to patients. Non-managerial employees found the limits of decentralization, that those at the top encouraged and supported democracy while retaining some turf to themselves, to be reasonable and reassuring; there was a shared sense that MMC has great managers who understand what they should do.

We found that non-managerial employees now have a louder and stronger voice and that management does listen to their voice. But this occurs in a conversation in which there is underlying acceptance that while managers might not dominate as much as they did in the
past, their words might matter more than those who have only recently found their voice. All have voice, but all voices are not equal.

Conclusion

The examination of complexity science in the organizational domain has led to new understandings about leadership. Accordingly, leadership is an indirect, catalytic process (Schneider and Somers, 2006) that facilitates self-organization, a movement in which activities are reformulated around a common cause (Uhl-Bien et al., 2007). We hope our case study of the MRSA Collaborative at Maine Medical Center helps illuminate the human and social aspects of organizational leadership in a complex adaptive system. We also hope our analysis of the case elevates complexity science’s application to leadership from Fry and Kriger’s (2009: 1677) categorization as a contingency theory to their category of ‘conscious leadership’, in which leadership is based on being aware of self in relation to others. We find that the MMC case lends support for the complex responsive processes theory of Stacey; a theory built on selected principles of complexity science, social psychology and psychology, and recognition that most attempts to develop complexity-informed theories of leadership give insufficient attention to human dynamics and qualities.

By having the opportunity to observe the process at MMC, we witnessed how leadership emerges within a maze of emotions, obstacles, paradoxes, power plays, and other challenges. Those engaged in leadership – from senior executives to front line staff – grew in their awareness of self and others and in the complex issues associated with change. The vice president of nursing, to whom Cheryl reported, stated she had never seen such rapid development of people. We also witnessed significant improvement in infection prevention practices, a decrease in MRSA rates, and a culture of wider staff engagement. Together these advances inspired a significant medical center-wide drive to eliminate transmission of all antibiotic resistant bacteria. Together these can be seen as non-linear, emergent outcomes generated by a self-organizing process in a complex adaptive system. They can also be viewed as demonstrations of what is possible if one attends to key complexity science principles in approaching change: namely diversity, relationships, shifts in power, and the coexistence of order and disorder.

In addition to enriching existing theory, we hope our research has practical implications for healthcare and possibly other organizations. Our study endeavored to meet the challenge for collaborative research in a healthcare setting that attempts to share and expand knowledge across the academic/practitioner boundary (Bartunek et al., 2003). It leads to a fuller understanding of the human and leadership dimensions of the PD process, issues given scant attention in the PD literature. Yet, we are also mindful of context-bound limitations regarding insights drawn from the case, which reflect the uniqueness of organizations due in part to their path dependency and the idiosyncratic aspects of the process of emergence. Further, few potential organizational outcomes would likely be as compelling and coalescing across a diverse set of employees as that of combating MRSA in a hospital setting. This suggests that an equivalent level of success might not necessarily be achieved in facilitating self-organization toward other outcomes selected by executive management in other contexts. Still, the collaborative effort of a diverse set of employees combating an adversary in a complex organizational setting offers persuasive evidence regarding what constitutes leadership, and how it can be practiced.
Acknowledgements

An earlier version of this article was awarded the 2012 Best Paper Award of the Organizational Change and Development Division of the Academy of Management. It was presented at the 2012 Academy of Management conference, and an abbreviated version of it appears in the conference best paper proceedings.

References


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