Aligning Leadership Across Systems and Organizations to Develop a Strategic Climate for Evidence-Based Practice Implementation

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Abstract

There has been a growing impetus to bridge the gap between basic science discovery, development of evidence-based practices (EBPs), and the availability and delivery of EBPs in order to improve the public health impact of such practices. To capitalize on factors that support implementation and sustainment of EBPs, it is important to consider that health care is delivered within the outer context of public health systems and the inner context of health care organizations and work groups. Leaders play a key role in determining the nature of system and organizational contexts. This article addresses the role of leadership and actions that leaders can take at and across levels in developing a strategic climate for EBP implementation within the outer (i.e., system) and inner (i.e., organization, work group) contexts of health care. Within the framework of Edgar Schein's "climate embedding mechanisms," we describe strategies that leaders at the system, organization, and work group levels can consider and apply to develop strategic climates that support the implementation and sustainment of EBP in health care and allied health care settings.

INTRODUCTION

Across multiple health and allied health care settings, there has been a growing interest among policy makers, agencies that fund research, health service organization leaders, and providers to bridge the gap between scientific discovery and the development of evidence-based health innovations and practices (EBPs) and the effective and efficient implementation and delivery of EBPs to those who would most benefit (44, 71). Although health care interventions with demonstrated efficacy continue to be developed, reports have repeatedly indicated that there is a gap in the utilization of such interventions in public health and health care settings (14, 40, 52, 56, 75, 81, 93, 118, 119). Thus, despite the allocation of significant funding for the discovery and development of EBPs, the public health impact of these investments has been limited. In response to this shortcoming, greater research attention over the past several years has been directed toward improving the dissemination and implementation of EBPs (56, 71).

Some of this research has focused on the development of implementation theories, frameworks, and/or models that identify structures and processes that can impede or enhance EBP implementation efforts. Many implementation models utilize a multilevel framework to enumerate different components, structures, and processes of the implementation process (30, 35, 45, 115). Implementation frameworks may note that characteristics of the intervention itself (e.g., direct costs, time demands, specificity, expertise required by the user) and the quality of evidence supporting the EBP are critical (39). Others have noted that the fit of an innovation with the context for implementation (e.g., hospital, community health clinic, school, public sector health system) is also a critical consideration in determining whether to move forward with implementation (30, 42, 45, 60, 68). Although there are debate and research on the nature, veracity, interpretation, and external validity of research evidence of public health programs and interventions, for the purposes of this paper we assume that a particular EBP has been evaluated and a decision has been made to implement it in a given setting.

Beyond issues of fit with the innovation, characteristics of implementation settings (e.g., systems, organizations) are critical for effective adoption and use of EBPs. It is the role of leaders across multiple levels of systems and organizations to develop a context that supports a strategic initiative such as EBP implementation. In this article we argue that leaders can use strategies to develop system and organizational climates conducive to EBP implementation and sustainment. We focus on leader-initiated strategies and organizational characteristics that can impact EBP implementation at multiple levels of health care systems and organizations.

Various common organizational processes are likely to be associated with successful implementation (30, 45). There may be a tendency to focus on processes directly involved in health care including the care recipients (e.g., patients, clients) and care providers (e.g., doctors, nurses, clinicians). However, one should also consider that health care and allied health services (e.g., mental health, substance abuse treatment) are delivered to the public within the larger contexts of work groups, health care organizations, and public health systems of various sizes and scopes. Organizational factors involving stakeholders at multiple levels can impact successful organizational change, such as implementation (13, 35, 67), and it is becoming increasingly clear that organizational factors are likely to have as much or more impact on successful EBP implementation than are individual characteristics of care providers or care recipients (57).

Drawing from the Exploration, Preparation, Implementation, and Sustainment (EPIS) implementation framework, we emphasize the importance of considering leaders and leadership in the outer (system) and inner (organizational) contexts (6). Specifically, we identify how leaders may facilitate the development of strategic climates for EBP implementation while enumerating components of the implementation process (30, 42, 45). We first highlight literature on organizational

climate and implementation climate and then outline approaches and strategies leaders can utilize to support the development of strategic climates to support EBP implementation.

ORGANIZATIONAL CLIMATE

Organizational climate has been a topic of interest since the middle of the twentieth century, when researchers examined the work environment resulting from leaders' treatment of their employees (11, 70, 76). Since then, research on organizational climate has been conceptualized in many different ways, varying by level of analysis (individual versus organizational unit), content (description versus evaluation), focus (general versus specific), and type of composition model (climate level versus climate strength) (31). Organizational climate has been associated with numerous organizational outcomes that play an important role in implementation, including employee attitudes, motivation, and performance (69). Climate has been most commonly defined in terms of employees' aggregate perceptions of the "events, practices, and procedures and the kinds of behaviors that get rewarded, supported, and expected in a setting" (104, p. 384). Although the emphasis has been on the policies, practices, procedures, and reward systems in service systems, organizations, or work groups, scholars agree that climate captures the meaning that employees derive from policies and procedures regarding what management values and supports (31, 59).

One of the primary distinctions made in the organizational climate literature has been between molar climates and focused climates (31, 105). Molar climate refers to the extent to which employees experience a positive (or negative) work environment (105). Although definitions vary, this term typically describes multiple dimensions contributing to general employee well-being, such as role stress, autonomy, leadership support, and warmth (41, 58). In contrast, focused or "strategic" climates represent employees' perceptions of the extent to which organizational events, practices, and procedures align with and support a specific criterion of interest, such as a particular strategic imperative (e.g., climate for customer service, climate for safety) or an organizational process (e.g., ethics climate, fairness climate) (31, 105). We build on previous work that identifies implementation climate as a measurable and important focused or strategic climate (66).

Ample evidence indicates that the presence of a strategic climate is associated with better organizational performance pertaining to the strategic criterion of interest (31, 69). For example, higher levels of safety climate are associated with increased employee safety behavior and decreased accidents (127, 128). A strategic climate for creativity is associated with higher employee engagement in creativity processes (37), and a strategic climate for innovation is associated with organizational innovation (61). Additionally, higher levels of a service climate are associated with higher customer satisfaction (107, 108). Of particular relevance to this article is the strategic climate for implementation (67, 68), which we describe next in the context of EBP implementation in public health systems, organizations, and work groups.

Implementation Climate

Implementation climate is a type of strategic climate and was originally defined as "employees' shared perceptions of the importance of innovation implementation within the organization. . .[that] results from employees' shared experiences and observations of, and their information about and discussions about, their organization's implementation policies and practices" (66). When a strong and positive implementation climate is present in a system, organization, or work group, the environment supports the transfer or translation of a new innovation into practice (66). In this article, our focus is on implementation climate as it refers specifically to the implementation of EBP in health care settings. Using past definitions of

organizational climate and implementation climate (66, 106), we define EBP implementation climate as employees' shared perceptions of the policies, practices, procedures, and behaviors that are rewarded, supported, and expected in order to facilitate effective EBP implementation and use (4).

EBP implementation climate can be developed when leaders at the system, organization, and work group levels communicate the importance of EBP implementation through the policies, procedures, and reward systems they establish. In a strong EBP implementation climate, health care providers clearly understand that leaders (e.g., policy makers, agency executives, program managers, supervisors) endorse and support EBP implementation and use. For example, an employee may understand that rewards and recognition are available or offered for effective EBP use, even before receiving such reinforcement personally. A strategic EBP implementation climate can be developed by leaders at the system, organization, and work group levels, and we contend that greater congruence across levels will facilitate development of such climates and, hence, more effective EBP implementation. Thus, we next consider the role of leadership in creating a strategic climate for EBP implementation.

LEADERSHIP

Leadership is an important component of organizational processes that support organizational change such as EBP implementation (15, 17). Leadership facilitates processes that are important in fostering implementation, including a supportive work group climate (109), positive employee work attitudes (65), positive attitudes toward EBP (2), and commitment to organizational change (51). Leadership has been defined and studied in various ways across disciplines. One of the most well-known and most heavily researched approaches to leadership is transformational leadership, a type of leadership that inspires and motivates staff to follow an ideal or course of action. Transformational leadership is composed of four main types of leader behaviors associated with effective day-to-day operation in organizations: individualized consideration (appreciation of others' individual contributions and needs), intellectual stimulation (ability to stimulate critical thinking and accept different perspectives), inspirational motivation (ability to inspire and motivate staff), and idealized influence (leader acts confidently and instills pride, respect, values, and a strong sense of purpose and collective sense of mission) (15, 16, 18). Research has demonstrated that transformational leadership is associated with increased job satisfaction (90, 124), organizational commitment (23), and performance for leaders (48, 123), teams (18, 53), and employees (129), as well as with decreased negative outcomes, such as turnover intentions (23) and burnout (28, 29). Of specific relevance to this article, transformational leadership has been particularly important for ameliorating the negative impact of organizational stress on work group climate during large-scale health care system reform (8) and has supported positive attitudes toward EBP in statewide system change efforts (9). Transformational leadership is also associated with the success of implementation efforts (78, 79).

Although much of the literature on leadership has focused on the organizational and work group levels, health care organizations can be strongly influenced by the decisions and policies made or enacted by leaders at the system level as well. Decisions and policies at the system level can impact laws, funding, and disbursement of resources across countries, and at state and local levels (114). For example, leaders in the United States Veteran's Health Administration (VHA) supported the development of the handbook *Uniform Mental Health Services in VA Medical Centers and Clinics* (122), which includes several mandates that help create the capacity for medical centers and large community outpatient clinics to deliver EBP. The handbook charges that each VA medical center should have an EBP implementation coordinator who is responsible for educating providers and upper-level management about EBP, encouraging providers to attend EBP trainings, and working

with mental health leaders at the organizational and work group levels and with providers to identify methods to increase delivery of EBPs in clinical care. Thus, this is an example of how leaders in the outer context (system) can develop policies that impact the inner context (e.g., hospitals, clinics, work groups, providers).

Leaders at the organization level (e.g., CEOs, presidents, administrators) often are responsible for decisions regarding implementation of new practices and organizational strategies (22, 86). This level of leadership helps secure funding, which may be related to the decision to implement new practices as funders are increasingly requiring the use of EBPs (33, 81–84). However, as we note above, leadership and communication congruence across levels is also an important consideration. The challenge for executive leaders is to involve lower levels of leadership and staff to facilitate congruence of mission and process. If such inclusive approaches are not utilized, work group leaders (i.e., first-level leaders who supervise direct service staff) may not have needed buy-in or an understanding of the rationale behind the decision to implement EBP and thus may not effectively communicate enthusiasm and the supportive rationale to direct service providers.

Although strategic decisions about implementing EBPs are typically made by upper-level leaders, the effectiveness of implementation efforts is driven by the providers who deliver the actual services (26, 77, 125). Consequently, the implementation process may be better facilitated if led by first-level or work group leaders who supervise direct service providers (91). For implementation to be successful work group leaders must be proactive and perseverant in communicating their knowledge of and support for EBP while managing resistance to change and communicating the importance of the change being implemented (3, 25, 86, 99). In addition, leaders can approach implementation as a problem-solving exercise and acknowledge concerns regarding adaptation of local context (e.g., service system, organization) to facilitate the EBP fit or EBP adaptation to fit local circumstances or populations (5). However, attention to addressing implementation barriers and capitalizing on facilitators during the EPIS Preparation phase should help to mitigate potential problems in the Implementation phase (7).

Higher-level leaders in systems and organizations should attend to how leadership is being utilized. For example, research suggests that lower- and middle-level leaders who do not support a change initiated by their superiors may use their leadership skills to impede the implementation process (27, 47, 97). Thus, it is important to consider strategies to support the development of effective leaders and congruence of leadership and communications across levels so that work group leaders can provide optimal support to their employees in implementing and using EBP.

Although most leadership research has focused on individual leaders, studies have demonstrated the importance of alignment across multiple levels of leadership (55, 86, 126). At the system level, Chreim and colleagues (26) examined the factors that influenced implementation processes during the transformation of health care service delivery to a new model within one Canadian province. They found that implementation was propelled by fostering agreement, active participation, commitment, and congruence of support at all levels of leadership. At the work group level, the degree to which providers agree about the strategy or change being implemented predicts implementation success (113). Similarly, the aggregate of multiple levels of leadership predicts organizational outcomes as a function of strategic implementation efforts (86). We propose that such leadership congruence is effective because it sends a clear message about the importance of EBP and facilitates a positive implementation climate among stakeholders.

Although some progress has been made in identifying the types of leadership and processes through which leaders affect the success of implementation, continued research is needed to identify and promote the specific actions by leaders across all levels that maximize the likelihood of implementation effectiveness and success (67, 88, 92). To help fill this gap in the literature, we next outline strategies (i.e., embedding mechanisms) that could be utilized across system,

organization, and work group levels of leadership to create an organizational climate that supports EBP implementation. As with models that specify theoretical mechanisms likely to enhance implementation, we highlight leadership and organizational strategies that can inform implementation strategy design and also provide an agenda for leadership and climate research related to EBP implementation and sustainment.

CLIMATE EMBEDDING MECHANISMS

Schein's (103) work on organizational culture provides a useful framework for deepening our understanding of the types of leadership strategies needed to create a climate for EBP implementation. Schein described organizational culture, a concept closely related to organizational climate, as having three levels: artifacts (the visible or easily obtained information on how an organization looks and operates), espoused values (management and employee beliefs and philosophies thought to be critical to the organization's success), and basic underlying assumptions (the deepest level that often operates outside of conscious awareness and explains why the organization functions the way it does) (103). Zohar & Hofmann (130) connected Schein's conceptualization of culture with the literature on climate by proposing that a strategic organizational climate is a function of the enacted values and priorities of management, and it is the contrast between the espoused and enacted values and priorities of management that illuminates the assumptions at the deepest level of organizational culture.

One particularly relevant aspect of Schein's work for implementation science is the use of primary and secondary "embedding mechanisms" as an approach for leaders at multiple levels to communicate their values and priorities (103). Although they are originally referred to as culture embedding mechanisms (102), Schein more recently acknowledged that these are more likely associated with organizational climate and how the values of leaders are enacted and subsequently perceived by others. Thus, we characterize these as climate embedding mechanisms. The six primary embedding mechanisms described by Schein (103) are as follows:

1. what leaders pay attention to, measure, and control on a regular basis;
2. how leaders react to critical incidents and organizational crises;
3. how leaders allocate resources;
4. deliberate role modeling, teaching, and coaching;
5. how leaders allocate rewards and status; and
6. how leaders recruit, select, promote, and excommunicate.

Primary embedding mechanisms can be applied to communicate a desired message. For example, a leader may communicate a positive vision for the implementation of a particular EBP through these mechanisms. Alternatively, for example, the act of allocation of resources for EBPs while reducing or eliminating resources for non-EBPs can signify both what is and what is not considered important in a system or organization.

Schein also outlined secondary articulation and reinforcement mechanisms that support and perpetuate the organization's climate, provided these are consistent with the primary mechanisms above. The six secondary mechanisms are as follows:

1. organizational design and structure
2. organizational systems and procedures
3. rites and rituals of the organization
4. design of physical space, facades, and buildings
5. stories about important events and people
6. formal statements of organizational philosophy, creeds, and charters

We next provide examples of how leaders across outer contexts (e.g., health services systems) and inner contexts (e.g., organizations and teams or work groups) may use primary and secondary embedding mechanisms to create, support, and reinforce EBP implementation climates, including connections to transformational leadership dimensions when and where relevant.

Primary Embedding Mechanisms

What leaders pay attention to, measure, and control on a regular basis. This climate embedding mechanism spans multiple levels of leadership in that all types of leaders can pay attention to and demonstrate knowledge, interest, and support for EBP. This is a mechanism where the transformational leadership approaches of individualized consideration may be particularly useful in focusing on the needs of particular organizations, work groups, or individuals. In the outer context, system-level leaders can advocate for and set policy, apply appropriate planning frameworks, include and engage relevant stakeholders, and make ongoing evaluation or quality assurance a key component to support the implementation and use of EBP (21, 117). Such support can also be communicated in public forums, policy statements, grant opportunities, and press releases. Such actions can signal clear support for EBP, particularly if policies are enacted to back up espoused positions or platforms (120).

In the inner context, what organizational leaders pay attention to can be demonstrated through their communications with employees. For example, a company newsletter can be used as an avenue for health care executives to share their enthusiasm for the benefits of a particular EBP, perhaps by summarizing and communicating the results of a pilot/demonstration project. Executive team meetings can also be used by organizational leaders to demonstrate the priority of EBPs. For example, in the EPIS Preparation phase, leaders can include discussions of the challenges of implementing EBP and ways to overcome those challenges. Specifically with regard to the issue of measurement, organizational leaders can include fidelity or quality measures that practice experts and/or patients complete to ensure that providers are using EBP properly, thus communicating the message that proper implementation and use of EBPs are priorities within the organization. The impact of collecting data using such measures may be heightened when it is shared through feedback and quality assurance processes. Although there may be the need for some adaptation of EBPs and related quality measurement for a given context or patient population (5), research suggests that such feedback processes are a critical component to successful EBP implementation across a variety of settings (20, 60, 63, 64, 80, 110). By not only collecting such information but also sharing it with providers in a supportive manner, organizational leaders reinforce the seriousness of their attempts to improve the EBP implementation and utilization process. All these actions by executive leaders not only demonstrate to providers the importance of EBP, but also serve as a model for leaders at other organizational levels for how to communicate the importance of EBP in the organization.

In the trenches of health care provision, the issues that work group leaders pay attention to play a critical role in providers' priorities. As work group leaders interact with their staff (whether in a group or in one-on-one supervision or meetings), they can ask about the current status of EBP use and encourage staff members to continue to utilize EBP. Leaders may also discuss the benefits of EBP during regular work group meetings, perhaps through sharing publications or literature demonstrating the effectiveness of the EBP or case studies illustrating its impact. Last, and perhaps most critical, leaders can emphasize the importance of using EBP for improving patient outcomes, highlighting that the reason for EBP implementation is the rigorous demonstration of its link to better outcomes for patients, allowance for clinical expertise and judgment, and consideration of patient or consumer choice, preference, and culture in the delivery of such practices (10, 56).

Just as providers discern the values of leaders through what the leader pays attention to, providers also gain insight into leaders' values by what they do not pay attention to or what they ignore. For example, if work group leaders receive information about the effectiveness of the implementation of an EBP but do not place much of an emphasis on it, then leaders are communicating that they are not on board with or supportive of the priorities of the organization's leadership; this attitude is likely to have a negative influence on providers and their prioritization of EBP implementation. Another example is when providers do not continue to use the EBP being implemented but instead revert to less-effective or unproven services as usual, and the leader is aware of this action. By not responding to this issue, the work group leader sends a message to the providers that EBP use is not very important and is not truly valued. Finally, the failure to use the best evidence in clinical care and services is one concern for leaders, but another important issue is the recognition and cessation of practices shown to be ineffective or to cause harm. Such "de-adoption" of practices can also be a volitional decision by leaders and organizations (73) and can indicate to employees what is, and what is not, considered important practice in a given setting.

How leaders react to critical incidents. When crisis situations occur within a health care system, organization, or work group, providers look to their leaders for direction and may perceive whether the leader's espoused values will persist even when stress levels are high. The inspirational motivation and idealized influence aspects of transformational leadership may be particularly useful here. In the case of EBP, providers can observe whether leaders will stay the course through challenges and support EBP implementation, or if they revert to practice as usual. At the system level, one common crisis situation is related to budget issues. There are costs involved with EBP implementation, and so the question becomes whether system leaders are willing to prioritize, initiate, and continue to fund EBP implementation even when funds are tight. If not, then even when the crisis is over, it may be difficult to build a climate supporting EBP implementation because the actions taken by system leaders during stressful periods contradict their espoused value of EBP implementation.

For organizational leaders, the primary types of crises may be related to funding, such as when a health or allied health organization fails to obtain a contract or programs experience reimbursement changes or funding cuts. Such occasions may present an opportunity for organizational leaders to apply a problem-solving approach to the implementation process. Recent research suggests that participating in problem solving can result in high levels of fidelity in EBP implementation (85) and that framing problem solving as a system or organizational (rather than individual) concern can lead to more effective organizational change (12, 63, 85). Thus, organizational leaders can take a crisis and use it as an opportunity to work with their leaders across levels to develop solutions that support EBP implementation. Because funding entities increasingly require health care organizations to utilize EBPs (6), leaders can use a funding crisis to highlight the importance of EBP in securing continued funding and to identify changes that can be made to minimize such crises in the future.

At the work group level, a crisis may have less to do with funding issues and more to do with patient crises or productivity requirements. In the same way that organizational leaders can take a problem-solving approach to address funding challenges, work group leaders can take a problem-solving approach with their teams. For example, when a crisis occurs owing to a patient straying from a medication regimen, having a substance abuse relapse, or attempting suicide, work group leaders can engage with their providers about how to continue implementing the EBP while also effectively addressing the crisis. Even if the crisis requires a service provider to stray temporarily from an EBP protocol, work group leaders can emphasize the importance of returning to the treatment protocol as quickly as possible to maximize the potential benefits of

the EBP. By maintaining the importance of EBP implementation despite the crisis, leaders can strengthen their providers' perception that the use of EBP is a core value and strategy.

How leaders allocate resources. The availability of resources is a critical factor in whether EBP can be implemented successfully. In the outer context, system-level leadership is especially critical in regard to allocating funding to support EBP implementation (e.g., training, coaching or fidelity monitoring, service provision). One example is Los Angeles County, California, where a recent mandate required that children's mental health provider organizations use practices from a predetermined list of EBPs to qualify for certain funding streams. This type of policy can accelerate the rate of initial EBP uptake. A system-wide emphasis such as this does not, however, diminish the importance of leadership in the inner context of provider organizations to respond to and support ongoing EBP implementation and sustainment.

Within provider organizations, the ways in which budget decisions are made is likely to vary (92). For example, organizational leaders may make decisions about budget allocations independently or with input from work group leaders. Once allocations are made, work group leaders may manage their resources relatively independently, using their own judgment about the appropriate use of funds without having to gain approval from higher levels of leadership. In other cases, the budget may be handled on a case-by-case basis, with work group leaders requesting funds from executive leadership and executives working with work group leaders on how best to meet their budgetary needs. Whatever the exact system may be, both agency executives and work group leaders may play a role in determining how resources are allocated toward EBP implementation.

Also critical for resource allocation are those expenditures that are not explicitly required for EBP implementation but that may improve EBP implementation effectiveness and sustainment. Examples may include providing ongoing training and coaching or making sure tools or resources related to the EBP are available for providers. Another example is explicitly identifying and providing fiscal support for project champions or coaches to support providers who are utilizing a specific EBP (120).

How leaders allocate rewards and status. The ways in which rewards and status are allocated can be signs of the importance of a strategic initiative. Thus, individualized consideration applied to organizations and individuals may be helpful in this regard. In the outer context, system-level leaders may publicly recognize high-performing organizations or exemplary initiatives to accomplish effective EBP implementation. For example, one large California county behavioral health system began the process of transforming into a recovery-oriented model of service delivery, and three outpatient mental health treatment programs were selected to pilot the transformation by implementing reliable and valid recovery-oriented assessments (111). The selection for this pilot was considered prestigious and through this designation, leaders from these three programs were invited to co-present at a conference to address the system change. They also served as representatives of mental health treatment programs at committee meetings and facilitated collaboration between the programs, county administrative staff, and researchers contracted to evaluate the transformation.

In the inner context, organization and work group leaders can allocate reward and status through bonuses for EBP utilization. Although financial rewards may not be feasible for all organizations, nonmonetary recognition is another alternative available to leaders. For instance, a health care executive may recognize work groups for successfully implementing a new practice in an email or newsletter to the entire company. Work group leaders may create a special status for individuals they supervise who are considered experts in a particular EBP. Taking these steps not only shows that EBP expertise is valued by the work group leader, but also improves

the likelihood for implementation success by providing proximal support for service providers rather than requiring them to look elsewhere for answers to EBP-related questions. Such rewards and recognition aligned across the organizational and work group levels should support the development of a strategic climate for EBP implementation.

Role modeling, teaching, and coaching. The next embedding mechanism highlights the importance of leaders' role modeling, knowledge, support, and commitment for EBP. Transformational leadership dimensions of idealized influence and individualized consideration may be particularly useful for this embedding mechanism. Although active role modeling, teaching, and coaching are more readily applied at the work group level, leaders at the system and organizational levels can also model positive attitudes and actions toward the EBP being implemented. Provider attitudes are an important predictor of EBP implementation effectiveness (2, 43, 49, 98), and leader attitudes influence provider attitudes, particularly during times of change (72, 87, 100). Thus, even though system and organization leaders may not have the opportunities to work directly with teaching and coaching providers, they can serve as important role models in other ways to support the overall development of a positive climate for EBP implementation.

This embedding mechanism most directly involves the hands-on role that leaders play in providers' daily work; thus this mechanism is most applicable to work group leaders as they work most closely with the providers they supervise. Leader role modeling, teaching, or coaching may be more effective when they are familiar with the EBP in question, and thus this embedding mechanism requires that leaders themselves be knowledgeable about and/or skilled in EBPs. A first step that leaders can take is to attend (at least some) EBP training sessions with their employees. Doing so has both a symbolic effect of demonstrating the importance of the training and a practical effect in helping the leader to become more knowledgeable about and gain a deeper understanding of what it takes to provide the EBP. In some organizations, the work group leader may have clients or patients of his or her own. In that case, the leader can serve as more of a direct role model not only by using the EBP but also by sharing his or her experiences in doing so, perhaps emphasizing in particular how he/she persevered in implementing the EBP despite any challenges that were faced. Although some opportunities for teaching and coaching will naturally occur as employees come to their work group leader with questions about the EBP, we also recommend that the leader allocate time (perhaps in group meetings or even in separate meetings) to specifically discuss EBP implementation and to support providers through the implementation process.

How leaders recruit, select, and promote. The final primary embedding mechanism involves how leaders recruit, select, and promote their staff. Decisions around recruitment, selection, and promotion can send a strong message about the importance of EBP and can occur in the outer or inner contexts. Selection decisions at the system level are critically important because of the prestige and influence associated with high-level positions. Selecting an official who supports EBP will help ensure that decisions at the system level will support EBP implementation, sending a message to public health employees and to the general public that EBP is a priority in the health care system.

Within organizations, leaders may work with human resources departments to consider experience with EBP when hiring for service provider positions. Even if providers do not have extensive experience with an EBP or are not being hired to perform a specific EBP, leaders could still seek out applicants who are open to new practices and have positive attitudes toward EBP (1). Although the climate for EBP implementation may be improved just by increasing the number of individuals who have expertise with and positive attitudes toward EBP, recruitment, selection, and promotion processes should have a greater impact if current employees are aware that such criteria are being

used. Thus, leaders need to communicate how these processes relate to the organization's values related to EBP.

Secondary Articulation and Reinforcement Mechanisms

Organizational design and structure. The way that leaders design and structure systems, organizations, and work groups can play a key role in supporting EBP. For example, partnerships among policy makers, researchers, and practitioners can encourage the dissemination and implementation of EBP into health systems by navigating and addressing implementation challenges (10). It is also important to facilitate partnerships among associations, licensing boards, and other relevant bodies to develop strategies to provide training in EBP and to include requirements for training in and implementation of EBP in state licensing board rules and regulations as well as funding and contracting mechanisms (24).

Payment structures at the system and organization levels can also promote implementation of EBP (26, 36, 46, 50). An example of how payment structures at these levels can promote implementation is evident in the patient-centered medical home (PCMH) model, a promising new approach to integrated care. One of the seven joint principles of the PCMH is to adjust payment structure to combine fee-for-service, pay-for-performance, and a separate payment for care coordination and integration (96). This payment structure is explicitly intended to compensate for care, care management, and medical consultation that occur outside of the traditional face-to-face visits in order to facilitate the delivery of higher quality of care. Similar payment reforms are included in the Patient Protection and Affordable Care Act (ACA). For example, coverage of preventive services, such as incentives to Medicare and Medicaid beneficiaries to complete tobacco cessation services, supports an evidence-based approach to health care [Pub L. 111–148 (2010)]. Although payment reform is a structural feature critical to the adoption of the PCMH and ACA, in some cases EBPs may not be eligible for reimbursement through Medicaid or private insurers (36). This type of exclusion could affect the national climate for EBP in some facets of health care.

Additional structural features of systems, organizations, and work groups, including size, complexity, and formalization, can interact to influence implementation of EBP (19, 32). For example, in research assessing the interaction between organization type (e.g., health ministries, hospitals, regional health authorities) and size, EBP implementation was greater for medium-sized units for health ministries and hospitals but not for regional health authorities. Having smaller-sized regional health authority units that also included research staff was associated with greater EBP implementation (19).

System, organization, and work group infrastructure components such as information systems and clinical records systems may also impact EBP implementation (36, 50). Such clinical systems, computerized decision support, and prompts that support practice (such as decision-making algorithms and clinical reminders) can have a positive effect on aligning practices with evidence (112, 116). For example, computerized knowledge management in the form of email reminders has consistently demonstrated significant improvements in provider performance and patient outcomes for patients with heart failure (34) and cancer (74).

Organizational systems and procedures. Organizational systems and procedures can also facilitate EBP implementation through performance measurement and evaluation (50). System-level leaders may monitor the use of EBP by asking organizations to share data regarding providers' implementation and use of EBP. Such actions may eventually influence additional levels of leadership, encouraging agency executives and, in turn, work group leaders to collect data regarding EBP fidelity or quality. Doing so should reinforce the implementation climate as perceived by

providers and support their use of EBP. For example, one state human services agency includes mandates and funding in its contracts with community-based organizations for staff positions dedicated to fidelity assessment and coaching of providers of a target EBP (7).

Processes of consensus building, advocacy, and persistence in the interaction, coordination, and sharing of common goals are likely to be critical factors affecting EBP implementation and sustainment (10, 26, 36). Fragmentation and lack of coordination of services across systems or service sectors can impede EBP dissemination and implementation. For example, in child welfare systems personnel responsible for child protection, criminal investigation, and legal proceedings may have training relevant to their primary work but have relatively little exposure to evidence-based assessments or treatments because child protection and justice systems often operate independently from health and mental health systems (10). Such fragmentation and lack of coordination of services may act as a barrier to EBP implementation.

The timing of system and organizational procedures may also impact EBP implementation. For example, organizational systems and procedures concerning timing were often cited as a barrier to sustained implementation of the WISEWOMAN program, an EBP to reduce cardiovascular disease risk through improved nutrition and increased physical activity (38). Although the WISEWOMAN program is an exemplary public health intervention that has been widely disseminated for more than a decade, case studies with WISEWOMAN program leaders and managers from the first three US states to implement WISEWOMAN illustrated that lack of time can act as a barrier to the program's sustainment; this observation corroborates findings that unrealistically brief time frames can limit effective adoption, implementation, and sustainment of EBP (36, 38). Planning is often tied to funding, but innovations take time to become accepted and routinized in service systems; it also takes time for organizations and providers to develop climates that support EBP. Additionally, challenges such as turnover in leadership and staff must be proactively planned for and addressed by systems and organizations implementing EBPs (8). Consequently, ongoing concerted efforts, patience, a problem-solving orientation, and continued support at the system, organization, and work group levels are needed to facilitate EBP implementation.

Rites and rituals of the organization. At the system level, rites and rituals can help foster an EBP implementation climate. For example, the success of organizations within a service system in EBP implementation can be celebrated on a regular basis or at specified transitional time periods (120). Doing so can be a supportive strategy for improving EBP sustainment because organizations may become more invested in the implementation of a particular EBP when their success is acknowledged, remembered, and celebrated.

In the inner context, organizations and teams may have rites of passage such as completing certification in EBP or being acknowledged for excellence in EBP to signal the importance of EBP to leaders and staff. In our experience, organizations have administered certificates of completion after providers complete the required number of client visits and earn an EBP certification. If an entire team achieves EBP certification, team leaders may organize simple low-cost team celebrations, for example a potluck or pizza party. Executives in one large behavioral health agency identified teams that achieved mastery in an EBP and asked them to provide a presentation to other teams describing their implementation process and how they problem solved and overcame initial barriers to using the EBP. This approach provided recognition for that team and was further utilized as a rite of passage for teams because it indicated that executive leadership recognized and celebrated their success in EBP implementation.

Design of physical space, facades, and buildings. The design of physical space, facades, and buildings also affects EBP implementation climate (101). At the system level, community design

can promote adherence to physical activity guidelines (89), signaling the importance of such a strategic initiative. The design of physical space, including availability and proximity to facilities, can act as a barrier to EBP implementation for promoting adherence to physical activity guidelines. For example, point-of-decision prompt interventions can motivate stair use but are less likely to be effective in buildings where stairways are difficult to find, poorly lit, poorly maintained/secured, locked, and/or unsafe (62).

Within the inner context, one study (26) found that the removal of physical boundaries enhanced service providers' communication with one another such that they were more likely to be "giving the same message" to patients (p. 223). The architectural design of hospital facilities, including its technology and equipment, can also impact the use of EBP for patient safety in several ways (94). For example, insufficient space can hinder EBP implementation, as evidenced in the nursing literature when providers do not have allocated space for writing notes (116).

Stories about important events and people. This embedding mechanism relates to several of the primary embedding mechanisms discussed previously and may benefit from the use of inspirational motivation and idealized influence. For example, if organizations, teams, or individual health care providers are recognized for exemplary use of EBP (as discussed in How Leaders Allocate Rewards and Status), the stories of what transpired with regard to EBP may be shared in systems, organizations, and teams in future years. In addition, stories may be told about teams and organizations that participate in pilot programs to implement innovative treatments or technologies. Leaders can use stories about these pilot teams to demonstrate the trials and triumphs that occurred throughout implementation and to illustrate that implementation is not a one-time event, but rather is a stance and a process that takes time and a problem-solving orientation.

Although it may be natural for leaders and providers to perpetuate success stories regarding EBP implementation, this embedding mechanism highlights the importance of using positive language and a perseverant approach during EBP implementation. In our experience with mental health teams, we have sometimes heard stories from providers regarding clients for whom an implemented EBP was not a good fit. Leaders can utilize transformational leadership approaches such as individualized consideration and intellectual stimulation to encourage providers to question assumptions so that the stories providers tell about implementation can include overcoming barriers to implementation rather than ignoring challenges.

Formal statements of organizational philosophy, creeds, and charters. In addition to regulations and policies regarding EBP implementation (36), formal statements of organizational philosophy, creeds, and charters can facilitate a strategic climate supportive of EBP. These can benefit from the use of transformational leadership dimensions of inspirational motivation and idealized influence. The American Psychological Association's report on disseminating EBP for children and adolescents (10) serves as an example of a formal statement of a professional organization philosophy that supports EBP implementation. Such a formal statement communicates the encouragement of EBP implementation to all psychologists, irrespective of the system, organization, or work group within which they provide services. Additional examples include the Ethical Principles of Psychologists and Code of Conduct, stressing the use of scientific or professional knowledge in psychologists' provision of treatment (9), which further promotes a climate for EBP implementation.

Formal statements through major federal, state, and local policies calling for the coordination between researchers, practitioners, and policy makers also encourage EBP implementation. Efforts to align work groups in the addiction treatment field with EBP have been channeled through various legislative mandates and programs requiring EBP implementation. One example at the

federal level is the Substance Abuse and Mental Health Services Administration (SAMHSA)'s identification of the use of "evidence-based programs and strategies" among the ten indicators of quality care in the context of the National Outcomes Monitoring System (121). Another example of formal statements and policies that encourage EBP implementation is Oregon's Senate Bill 267, a mandate for agencies to spend 75% of their budgets on EBP-related activities for youth and adults at high risk for involvement in the criminal justice system, including in substance abuse treatment settings (95). A final example is a formal statement from the Minnesota Legislature requesting a plan to promote health at reduced costs, which prompted the development of a large public health intervention that requires further EBP implementation of all Minnesota Statewide Health Improvement Program (M-SHIP) grantees (38).

Mission statements are another example of formal statements of organizational philosophy, creeds, and charters that can enhance EBP implementation climate. For example, the mission statement for The Johns Hopkins Hospital Department of Nursing and Patient Care Services illustrates the goal of improving patient care outcomes through evidence-based clinical and administrative decision making. This mission statement seeks to address several key points, including to reinforce the spirit of inquiry and the lifelong learning necessary for EBP implementation, to address a work environment that demands and supports accountability for EBP implementation, and to include the goal of improving patient care outcomes through EBP implementation (84). Mission statements can be especially useful in embedding an EBP implementation climate if leaders behave and communicate in a manner consistent with the content of mission statements (103, 130).

CONCLUDING REMARKS

In this article, we have described some ways in which leaders can enhance structures, processes, and activities to promote outer system and inner organizational climates conducive to EBP implementation. We have provided a few examples, both from the literature and from our own anecdotal experience, of how system, organization, and work group leaders can develop strategic climates for EBP implementation. Space limitations preclude a more detailed and in-depth exposition on the issues of how leadership can be applied to the use of climate embedding mechanisms to foster a strategic climate for EBP. Rather, we have highlighted these issues and provided some strategies that could be adopted to support EBP implementation across the system, organization, and work group levels. We have concluded that the more the recommended strategies can be applied with congruence across outer and inner contexts, the more likely it will be that strategic climates to support EBP implementation can be developed. Such climates should, in turn, support effective and continued EBP implementation and sustainment. However, research on such multilevel strategies is needed to determine their effectiveness and impact. It is incumbent on leaders at multiple levels and from policy, practice, and academic settings to develop strategies for health and allied health care systems and organizations to demonstrate commitment to evidence-based care that should be recognized and embraced by health care providers across levels. Such a course of action should help to create a strategic climate that supports EBP implementation and sustainment to improve the public health impact of effective health care interventions.

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