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Program Implementation in the Prison System: An Organizational Study of the Chronic Care Model Program

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Program Implementation in the Prison System:
An Organizational Study of the Chronic Care Model Program

By

Greg Robinson

A dissertation submitted in partial satisfaction of the
requirements for the degree of
Doctor of Philosophy
in
Health Services and Policy Analysis
in the
Graduate Division
of the
University of California, Berkeley

Committee in charge:
Professor Todd LaPorte, Chair
Professor Chris Ansell
Professor Joan Bloom

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Abstract

Program Implementation in the Prison System:

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Greg Robinson

Doctor of Philosophy in Health Services and Policy Analysis

University of California, Berkeley

Professor Todd LaPorte, Chair

This study provides evidence of a successful implementation of a not-for-profit operational model within a public setting. The federal government placed a receiver in charge of improving health care within the California Department of Corrections and Rehabilitation. To achieve the receivership’s goals, a chronic care model from the not-for-profit sector was selected and implemented to improve the delivery of health care to inmates. The data suggest that operational programs developed outside of the government setting can fit the public-sector context with considerable and carefully selected modifications. This study also finds that focusing managerial behavior on program implementation details is also required for successful implementation.

These results may be generalizable to other settings in which private-sector models are selected for implementation in public-sector agencies. Policy makers and program administrators concerned with improving health care within correctional settings can use the framework for program implementation developed within this study.
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Chapter 1
Introduction

Overview

This study focuses on the California Department of Corrections and Rehabilitation (CDCR), which is responsible for the care and custody of incarcerated individuals in the state of California who have been sentenced to terms greater than one year. Individuals sentenced to terms less than a year, or those awaiting sentence, are under the care of different entities: the county or regional jails. In contrast to the state’s other custodial systems, CDCR is distinguished by its long-term focus on the care and control of individuals. This impacts the development of policy that promotes structural permanence. A policy focus of this type presents a significant obstacle for change management and process management, two key elements required for program-implementation success that was required within CDCR. The agency was brought under federal receivership to improve health care outcomes for prisoners; a change that enabled the federal courts to demand the implementation of health programs aimed at improving health care outcomes.

The prison system in California consists of 33 separate facilities serving over 175,000 inmates in a system designed for no more than 100,000 inmates. Due to the “three-strikes rule,” a law that requires third-time felons be sentenced to prison terms, many of the state’s 33 correctional facilities were operating at over 200% of designed capacity. Additionally, by the end of calendar year 2008, the average age of prisoners was 37 years old. This represents an increase of 37% in the average age over a 28-year time span: in 1980 the average age of the incarcerated was 27. Overcrowding in the system, combined with upwardly spiraling costs, led to organizational failure.

Inmates typically have more health issues than do those in the non-incarcerated population. An examination of de-identified CDCR data reveals that approximately 70% of the inmate population was taking at least one medication in the year 2009. The average for the U.S. population is closer to 47% (Center for Disease Control, 2010). Aging inmates cost two to three times as much to incarcerate as younger prisoners—on average $98,000 to $138,000 a year (California Department of Corrections and Rehabilitation, 2012).

When inmates are paroled, they do not receive the same access to health care as they do while imprisoned. In the state of California, inmates had a 63.7 percent three-year recidivism rate as measured in fiscal year 2012 (California Department of Corrections and Rehabilitation, 2012). While under custodial care, health care is free. Individuals reentering the prison system with medical conditions that were not treated while paroled may exhibit exacerbation in their medical conditions. The costs related to the treatment of individuals with more severe conditions are higher than they otherwise would have been if the individuals had received continuous care. In the absence of proactive treatments, and with an aging population in an overcrowded and unsafe environment, the costs associated with health care are likely to continue to rise among these wards of the state. The public health concerns go beyond the cost-of-care issue and are related to high recidivism rates and community health issues, including the spread of communicable diseases such as AIDS (Johnson & Raphael, 2009; Massoglia, 2008).

Some of the most prominent failures within the CDCR system were avoidable inpatient deaths, believed to have resulted from poor systems and controls related to the delivery of health care. A receivership was established as the result of a federal class-
action suit, *Plata v. Schwarzenegger* (2005), under which it was found that CDCR was deficient in providing constitutionally acceptable levels of medical care to prison inmates. Several federal court cases concerning unconstitutional conditions within the system preceded the institution of this receivership (*Toussaint v. McCarthy* [1984]; *Coleman v. Wilson* [1995]; *Armstrong v. Davis* [2001]; *Perez v. Tilton* [2005]). Under *Plata v. Schwarzenegger* (2005), it was found that, on average, one inmate-patient died every six to seven days as the result of deficiencies in the state prison’s health care system.

The receiver was given all powers vested by law in the Secretary of the California Department of Corrections and Rehabilitation, including the administration, control, management, operation, and financing of the California prisons’ medical health care system. Thus the court placed full accountability for inmate health care in the hands of the receiver (simultaneously removing these responsibilities from the secretary of the CDCR), giving the ability and responsibility to change the system according to court requirements. The receiver recruited a diverse team of industry experts consisting of medical, nursing, clinical quality, information technology, and facility construction professionals to assist with the prison health care reform efforts.

**Research Problem**

CDCR is presently the second-largest law enforcement department in the nation and is the single largest state-run prison system in the United States (CDCR, 2009; Moore, 2007). Over the past decade, this corrections agency has grown from the state of California’s third-largest employer to the second, behind only the state’s University of California system (University of California, 2011). For fiscal year 2011, $9.5 billion was budgeted by CDCR in order to supervise and oversee over 300,000 of the state’s criminals found guilty in a court of law (State of California, 2011). This size and structure relates to the common perception of big-government bureaucracy.

Large, bureaucratic organizations are unwieldy and difficult to change. Max Weber pointed out, “once it is fully established, bureaucracy is among those social structures which are the hardest to destroy” (as cited in Gerth & Mills, 1958, p. 228). This is true due to bureaucracy’s cohesiveness and discipline, its control of the facts, and its single-minded concentration on the maintenance of power. Hierarchical organizations are generally resistant to change that threatens their power. Despite numerous federal class-action lawsuits brought against CDCR throughout the 1980s, 1990s, and 2000s, a receivership that severed control of health care from the agency was required to fix the problems. In essence, this meant the bifurcation of the organization and dismantling of structure, splitting health care and custodial functions, in order to achieve change within the agency. Health care reform was the goal, but developing the proper structure and program around the new receivership governance structure was both a key obstacle and the research focus of this paper.

Programmatic implementations are often complex, requiring the coordination of resources, personnel, and new processes or technologies. Managing implementations from the perspective of change management alone is a big topic in both research and practice (Palmer, Duford, & Akin, 2006). The addition of a highly bureaucratic environment on top of the other complexities makes for challenging implementations. Public-sector implementations of large-scale programs face this additional environmental challenge. Pollitt and Bouckaert (2011) define public management reform as “deliberate changes to the structures and processes of public-sector organizations with the objective of getting
them (in some sense) to run better” (p. 2). Reform here is a synonym for improvement efforts. Generally speaking, organizational (be they public- or private-sector) changes for survival are associated with improving dated or simply ineffective methods. The ways in which these changes are made are based on implementation of new programs, which hold the DNA for the new processes and structures thought to be required to make the improvement.

As the effort of reform progresses forward, the implementation process encompasses larger issues than just the program (new structure and processes) itself. For the public sector, the judgment of successful reform is based on final impact to the community (Durlak & Dupre, 2008). The program implementation process itself may be successful in terms of new structure and processes adopted by the internal staff; however, if impact to the community is not perceived as positive, then the program itself may be deemed a failure. The Drug Abuse Resistance Education (D.A.R.E.) program is a classic example of this. As the nation’s most widely employed school-based drug prevention program, it has processes which are deemed efficient; however, final impact on the community has been less than fruitful in its mission to reduce the number of young people on drugs (Rosenbaum & Hanson, 1998). Achieving successful program implementation within a large public-sector organization is then a function of being technically proficient in the details of implementation, as well as producing tangibly visible outcomes for public view. This study investigates one possible path to achieving success and the challenges that the agency faced.

Over the past two decades, reform efforts in the public sector have been characterized by the use of management practices and techniques originally developed within the private sector. These reforms have ranged from budgeting methods to performance management (Lane, 1997; Moynihan, 2006). There are significant differences between public and private sector organizations as it relates to organizational change. Models and processes that are transferred from one sector to the other can lead to contradictory results. In comparison to private organizations, public organizations tend to be characterized by a multitude of decision-makers, a larger diversity of stakeholders, more intensive organizational dynamics and a more bureaucratic structure (Patchett, 2005). This concept will be explored in greater depth and detail in Chapter 2.

Reform efforts in the public sector’s human health services industry over the past twenty years have been beset with numerous challenges in the quest to adopt models from other sectors. Programs in the human health services industry are generally considered to be more complex than programs in other areas. This is due to the fact that human service technologies are delivered through the actions of individuals and organizations, which exist within multilayered social contexts (Fixsen, Blase, Naoom, & Wallace, 2009; Glisson & Schoenwald, 2005). The setting of a department of corrections further adds to the complexity of the multilayered social context in that the prison system is highly segmented and institutionalized (as will be described in this dissertation). The adoption of private-sector models by public correctional organizations has thus been not often undertaken. The literature offers no framework for successful implementation within the very complex health care correctional system, although reform efforts are unquestionably required for this subsector.

To improve the delivery of health care services and advance overall outcomes of treatment, the chronic care model (CCM) was selected for implementation in the CDCR
because the private, not-for-profit sector had demonstrated evidence of success in improving care using this model (Coleman, Austin, Brach, & Wagner, 2000; Wagner, 1998). This model originated in the not-for-profit sector and was selected based on coordination of care, attention to patients with multiple comorbid chronic conditions, and emphasis on the adherence to practitioner guidelines. The program under review in this study was called the chronic care model program. It was a particularly complex effort that required integrating the demands of six disciplines (custody, nursing, pharmacy, mental health, dental, and medical) that generally work separately, and three federal courts—each represented by a panel of court monitors, each with their own set of demands. Due to the organizational and environmental complexities, the challenges to implementation appeared insurmountable. Organizational structure, size, and the requirement to integrate the disparate objectives of various entities were all issues facing the receivership in its attempts to improve health care and meet federal requirements. These issues will be reviewed in greater detail in Chapters 2 and 3.

**Study Objectives**

Implementations of public-sector health care programs originating in the not-for-profit sector are rare. Therefore, there are few such examples in the literature. Subsequently, there is a lack of guidelines available to facilitate implementation efforts. A public-sector administrator cannot readily look to the literature for answers on how to effectively adopt a successful private-sector model to solve a current organizational problem. The distinct variables one must take into account in order to make the successful implementation are not well explicated in the few examples available in the literature. Broader generalizations, however, may be derived from existing academic and practitioner publications.

Planned implementation can be viewed as the expression of rational organizational behavior with the manager functioning as a technician whose primary task is to make the appropriate actions, with respect to established knowledge, to achieve efficiency and effectiveness (Thomas, 2002). Within the health care literature, a recent study suggested that planned implementations in the mental health services field can be successful if attention is giving to the needs of staff, which can be facilitated by proper management (McCrae & Banerjee, 2011). Australian researchers, Rooney et al. (2010) support the claims made by McCrae and Banerjee (2011), in their review of large scale change at a public hospital. They concluded that planned organizational change can be effectively managed when employees have established a strong sense of connection to the workplace. These studies reinforce the central objective of this study, which is to provide an example of planned organizational change that was staffed with capable management, who were properly engaged around the implementation activities.

Readiness for change is also noted as an important aspect of the planned organizational change cycle (Holt et al., 2009). Readiness is defined by Holt et al. (2009) as the degree to which individuals involved are primed, motivated, and capable to deal with the change. It is best when combined with well-constructed and directed communication efforts as suggested by Jordan et al. (2009), to build social interaction competence during the change effort. At a broader level, Kotter (1996) provides an 8-step guide for managing change which starts at developing a sense of urgency about the change and cumulates in institutionalizing the change culture. His work tends to lack references to extant literature (and thus independent verification of assertions); however a compilation of works from
the various organization literatures (organizational psychology, sociology, management theory) is given by Burke (2011). Burke provides insight into the broader theoretical issues related to organizational change and serves an excellent basis for understanding the more complex model of evidence-based implementations given by Aarons, Hurlburt, & Horwitz (2010). In their advancement of an implementation science conceptual model, Aarons, Hurlburt and Horwitz suggest a 4-stage implementation process for public sector service systems. They assert that program implementation starts with exploration, then advances to adoption (or preparation), followed by actual implementation, and ending in sustaining of the changes. The research undertaken in this paper follows the Aarons, Hurlburt, and Horwitz model, and while it does not delve deeply into the final stage of sustainability (due to length of time of the study), it fully endorses this as a requirement for implementation.

This study seeks to provide an example of successful program implementation while providing some guidelines for the administrator. Success in this study is measured by improvements in health care outcomes, as outlined in Chapter 4. Achieving this success will be argued to be a function of proper program development and middle manager involvement. To begin, a distinction must be made between leadership and management in order to frame the discussion around the role of the public-sector administrator in program implementation. An administrator could be a leader, a manager, both, or neither depending upon the time and scenario under review. As noted by Bass and Avolio (1990), “Leaders manage and managers lead, but the two activities are not synonymous… management functions can potentially provide leadership; leadership activities can contribute to managing. Nevertheless, some managers do not lead, and some leaders do not manage” (p. 383). Bennis (1994) summed the distinction:

There is a profound difference between management and leadership, and both are important. To manage means to bring about, to accomplish, and to have charge of or responsibility for, to conduct. Leading is influencing, guiding in a direction, course, action, opinion. The distinction is crucial. (p. 9)

The research undertaken in this dissertation looks at managers in their ability and capacity to manager and direct program activities and tasks. Management that is engaged and committed to the work under there area of responsibility is seen to be critical to implementation and organizational success (LaMontagne, Noblet, & Landsbergis, 2012; Johansen, 2012). A framework to understand management behavior in relation to program implementation performance is provided in Chapter 3, using techniques from the organizational-development field.

This study seeks to add to the literature on health care by providing an example of program implementation that emphasizes managerial behavior as central to its success. At the core of the managerial behavior leading to program success were interventions performed on the executive and midlevel management layers—interventions that were designed to improve managerial capacity within this public-sector environment. Managerial capacity in this study is defined as the ability for a manager to understand the work and react appropriately to achieve objectives. It is theorized that the more a manager is capable to understand the work, the better the outcome of the work, assuming that the manager is additionally empowered to alter the work as the need arises. By altering work, it is meant that resources may be differentially applied (e.g., individuals hired, fired, or transferred) to get the work completed. Within this setting, the managers were
empowered to alter the work performed under the receivership. Greater clarity and treatment of this important topic is provided in Chapter 3.

It is important to understand how managers engage with their staff within a program-implementation setting to achieve successful outcomes. This knowledge is fundamental to replicating success in other, similar implementation efforts. Two concepts or types of behavior are developed in this study as central to program implementation success in the public sector: managerial confidence and engagement in work. These aspects of managerial behavior relate directly to the previously provided definition of managerial capacity. Confidence in the work underway and being engaged in the details of how that work is carried out are functions of understanding the work at hand (i.e., managerial capacity). These behaviors are viewed as skills that can be taught to managers, and it is theorized that improvement of these skills leads directly to program performance. These skills are considered to be fundamental to the management of organizational change (Harter, Schmidt, & Hayes, 2002).

Fernandez and Rainey’s (2006) treatment of organizational change within the public sector identified eight factors pertaining to the development and progression of organizations. Their propositions are summarized in Table I, as taken from Packard et al. (2012).

<table>
<thead>
<tr>
<th>Propositions</th>
<th>Selected Findings</th>
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<tr>
<td>Ensure and communicate the need</td>
<td>• Emphasize the need for improved services</td>
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<tr>
<td></td>
<td>• Clearly state and prominently share the vision and guiding principles</td>
</tr>
<tr>
<td></td>
<td>• Communicate regularly with employees regarding benefits, costs, and progress</td>
</tr>
<tr>
<td>Provide a plan for implementation</td>
<td>• Involve mid and lower-level staff in planning</td>
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<tr>
<td></td>
<td>• Fully communicate plans to all employees</td>
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<tr>
<td>Build internal support and overcome resistance</td>
<td>• Involve key stakeholders in both planning and implementation throughout the process through work groups and task forces</td>
</tr>
<tr>
<td></td>
<td>• Communicate concern for staff and an understanding of their increased day-to-day demands</td>
</tr>
<tr>
<td></td>
<td>• Provide support staff resources for change processes</td>
</tr>
<tr>
<td></td>
<td>• Provide cross-program training and team building</td>
</tr>
<tr>
<td>Ensure top management support and commitment</td>
<td>• Demonstrate top management commitment through vision and championing the change</td>
</tr>
<tr>
<td></td>
<td>• Build trust within teams and between hierarchical levels of staff</td>
</tr>
<tr>
<td></td>
<td>• Build trust and mutual understanding among executive team members</td>
</tr>
<tr>
<td>Build external support</td>
<td>• Recognize and aggressively implement goals and visions of officials</td>
</tr>
<tr>
<td>Provide adequate resources</td>
<td>• Manage change incrementally to prevent overloading staff while maintaining momentum</td>
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A development-based framework is developed to help understand administrative program outcomes, program’s implementation and along with care program data. Administrative data from patient registries is aggregated and assessed through regression analysis in order to quantify the degree and type of success. Quantitative exploitation of this point will be developed in Chapter 3.

A more detailed manager’s behavior and react to program stimuli, which has their greatest level of attention, provides better knowledge of how to manage implementation processes. A more detailed analysis of this point will be developed in Chapter 3.

Two types of analyses are provided in support of claims asserted within the study. An exploration into health outcomes achieved by the program implementation is first explored in order to quantify the degree and type of success. Quantitative methods such as regression analysis utilizing a retrospective matched cohort method are applied to health care program data. Administrative data from patient registries is aggregated and assessed along with medical-chart information in order to explain possible associations between the program’s implementation and changes to patients’ health care outcomes over time.

To understand the relationship between management behavior and implementation program outcomes, the second analysis is presented in Chapter 3. An organizational development based framework is developed to help to understand administrative
behavior. Interventions on management are subsequently performed in attempts to modify non-optimal behavior. Behavior that is not considered optimal to program performance is identified by surveying the management staff periodically on their levels of engagement to the program work. The interventions utilized applied organization-development (OD) practitioner techniques and had the goal of improving manager’s interactivity with the work for which they were responsible. Oftentimes managers are pulled in multiple directions and their attention diverted from core program implementation work. Interventions were designed to ensure better understanding of the work at hand. The types of interventions employed are explored in Chapter 3.

In support of the health outcomes data provided by the program implementation, interviews were conducted with the managerial staff responsible for the work behind the chronic care model program. Using the program as the unit of analysis, these analyses will contribute to our understanding of well-directed administrative behavior’s effect on organizational performance, as described and discussed in Chapter 3.

**Overview of Chapters**

Chapter 2 will provide an in-depth understanding of the chronic care model as implemented within the receivership environment. It will explain that routinized behavior acted to subvert the adoption of this model and show the process by which a new design of the model was developed to fit this highly bureaucratic setting.

Chapter 3 describes the managerial capacity of the environment. It provides a deeper understanding of the intertwined organizational structure that was introduced at the start of this chapter. Within the organizational lay the structure of management that controlled the program implementation. Attention to this structure and how it affected behavior of the administrators is described in this chapter. A framework is established to understand how to improve managerial behavior in a program implementation setting. Interviews with staff provide a clearer understanding of how individuals reacted to the stimuli with which they were presented.

In Chapter 4, a quantitative analysis of health care outcomes data is developed in order to highlight the performance of the program implementation. These data help to show the results of efforts to maximize managerial behavior (Chapter 3), and modifications made to the program itself prior to implementation (Chapter 2). Four quantitative research questions are posed to test the significance of the chronic care model in relation to health care outcomes:

1. Does diabetic treatment under the chronic care model reduce the amount of utilized specialist care?
2. Does diabetic treatment under the chronic care model reduce visits to the emergency department?
3. Does diabetic treatment under the chronic care model reduce the number of hospital visits?
4. Does diabetic treatment under the chronic care model reduce the length of hospital inpatient stay?

The findings of these efforts are then synthesized in Chapter 5 to bring the study to a conclusion.
Chapter 2
The Story of Implementation: The Chronic Care Model in a New Sector

Overview

As acknowledged by the Uhrig review of the Australian government sector, there are benefits to be gained by studying the lessons learned in the private sector when considering appropriate operating frameworks for the public sector (Uhrig, 2003). Improving public-sector performance can have multiple objectives. Transparency may be an objective. The inner workings of a public agency’s decision-making process can expose inconsistent behavior that may need to be remedied. To remediate this behavior, performance-improvement techniques are likely to be employed using models such as the continuous improvement model first asserted by W. Edwards Deming (Langley, Nolan, & Nolan, 1994). The techniques chosen by the private sector may differ from those chosen by the public sector due to their structural differences. As Uhrig showed, however, there may be important lessons available from the private sector that may be used by public entities.

The purpose of the Uhrig review was to assist in improving the performance of public-sector governance. This paper has a similar purpose. The environment in which the private sector operates creates significant challenges for companies. The consequences of failure, combined with the threat of takeover and desire for profitability, provide incentives for the private sector to constantly strive to improve operational practices. The Uhrig review examined the experiences of the private sector, focusing on a range of governance arrangements and their corresponding impact on outcomes. In comparing and contrasting the private sector to statutory authorities, Uhrig found that the governance of the public entities was unclear and inadequate. As a result, Uhrig called for private-sector-style changes to increase transparency and accountability within the public sector. Among the solutions offered were calls for a central regulatory body (like a board of directors) and transparent roles and responsibilities (similar to those found in human resource departments in private U.S. companies). Criticisms of the reforms included an opposing view that suggested that governance experience within the public sector is institutional in nature and, as such, many of the criteria applied in the private sector are unsuitable for adaptation by the public sector (Wettenhall, 2004).

Employing private-sector methods to engage in work is not a revolutionary concept. Operational tools such as SWOT (strengths, weaknesses, opportunities, and threats) analysis and collaborative work environments have been carried over from public to private and vice versa for decades (Kearns, 2000). The adaptation of full private-sector programs for public-sector implementation is not often undertaken, nor is it well documented. Likely due to the complexities faced, operationalizing entire programs that have been initially incubated in the private environment is not an easy task. A counterexample is the public education system, which most recently attempted to adopt the private charter-school approach and proved successful in improving test scores within the private sector (Fryer, 2012).

The results of attempts to mirror private-sector programs appear to be mixed (Frankenberg, Siegel-Hawley, & Wang, 2010; Horn & Miron, 2000; Miron & Nelson, 2001; UCLA Center for Medical Health in Schools, 2010). While it may be theoretically sound to adopt the core principles and methods surrounding a private-sector model to the public setting by employing experienced private-sector labor, the actual measures of program
success differ greatly between the two environments (Boyne, 2002). These differences in measurement may lead to difficulties in the implementation process. The private sector tends to employ a generalized cost-benefit analysis related to future gains to revenue. The public sector is more multifaceted in its review of the benefits and costs to the social sector it supports. Issues related to social equality and cost avoidance are taken into account (Frankenberg et al., 2010). Further levels of complexity arise as administrators are often bound to the whims of lawmakers and policy-making bureaucrats, whose tenure and focus are tied more to voting cycles than to long-term progress and integrated success. As a result, administrators within the public sector face a different set of challenges when attempting to implement private-sector programs.

The body of literature pertaining to the health care industry, and to the adoption of private-sector health care programs for use within public-sector agencies, is thin. There are only a scant few examples of successful adaptations of private-sector social (non-health-care-outcomes related) models in correctional settings (e.g., Lin, 2000), through which researchers can gain an understanding of the foundational underpinnings that have made these undertakings work. Within the correctional literature on implementations, no examples were found of health-care-sector program adaptations.

Most studies of program implementations are examples of failure. Pressman and Wildavsky (1973) wrote about the change efforts that the city of Oakland underwent as established and supported by the federal government. In this study, the authors reviewed projects aimed at granting or loaning monies to development efforts. A major goal of these attempts was to reduce systemic unemployment; however, this goal was never realized under the program that the researchers evaluated. Problems related to compliance with regulations, changes in leadership, and many others stemming from lack of attention to the technical details of implementation led to ultimate program failure. While the implementation studied by these researchers was not the result of a required effort (e.g., receivership) under which the federal government dictated the outcome of efforts, a direct connection to the implementation under study in this paper may be drawn. Pressman and Wildavsky note in their work that the technical details of implementation might be the most formidable barrier to implementing public policy. In this dissertation, the technical details of the program are reviewed to understand the process of successful implementation.

Prior to turning to the technical details of this study's implementation, it is useful to describe some peripheral knowledge about program implementation within the prison setting. The custodial (or prison) setting is highly institutionalized in nature, as it has very strict and routinized behavior guiding most actions. As such, effecting change is a difficult, uphill battle (Lin, 2000; Useem & Piehl, 2008). Linn provides an in-depth look at prison-program failure and success, using information gathered from over 350 structured interviews with staff and inmate observations from five prison sites. Following Lin's tradition, this dissertation also utilizes data from prison-program implementation and interviews. Her synopsis of those data argues that successful implementation requires attention to the details surrounding the attitudes and cultural context of both staff and inmates. She frames the problem as an extension of Lipsky's (1980) concept of the “street-level bureaucrat.” Lipsky suggests that it is the line staff, rather than policymakers or agency directors, who actually make policy: “They exercise wide discretion in decisions about citizens with whom they interact. Then, when taken in concert, their individual
actions add up to agency behavior” (p. 13). Similarly, within the health care context of the custodial setting, it was found during this study that the workers (line staff) carried much of the power. The success of administrator’s policies depended upon whether or not line staff decided to implement in a timely manner. It is beyond the scope of this study to research whether levels of adherence to administrative policy were functions of strong leadership skills on the part of managers. It is well noted, however, that power did reside in the non-management workers—and working within the confines of their subgroups’ cultural context was, as Lin suggests, a necessary condition for successful implementation.

As introduced in the first chapter, the implementation of the chronic care model in the custodial setting of the CDCR environment faced numerous obstacles. A primary issue was adapting a private-sector program for use in a public setting. Evidence from 34 empirical studies that looked at the differences between public agencies and private firms found that public entities were more bureaucratic and their managers had weaker organizational commitment than their private-sector counterparts (Boyne, 2002). As a result it was concluded that due to these great differences, business practices or models developed in the private sector should not be transferred to the public sector. Private-sector companies appear to have greater success in adopting public-agency models, suggesting a unidirectional effect between sectors. For example, Khuri et al. (2008) concluded that the Veterans Affairs’ National Surgical Quality Improvement Program achieved positive health care outcomes when applied in private-sector hospitals, and the model was fully applicable to this sector. This suggests that the obstacles to change in the public sector may be more onerous than those faced by private-sector counterparts.

**Implementation Analysis at the Program Level**

Because private-sector organizations tend to face a set of challenges different from what confronts public-sector agencies, what are the characteristics of a program implementation that crosses these boundaries successfully? To understand how this can successfully occur, one must first understand how the public sector operates at the program level of analysis. Program-level analysis means focusing on how departmental units operate to achieve performance under a series of objectives that follow an overall goal—otherwise termed a program. The program level of analysis differs from the organizational unit of analysis in some significant ways. The former may take into consideration how the departments coordinate collaboratively with other departments both within and external to the organization. While not all programs require external collaboration, the program under review in this study did; therefore, attention was paid to how these external collaborations and interactions took place. In the setting under review in this study, the organizational subunits (i.e., departments) were tightly coupled in that physical colocation existed, and the various organizations were concentrated under a common set of oversight bodies (California’s governor and state legislature). The various correctional agencies brought together under the program had varying missions and organization-level goals, and they tended to have distinct objectives due to the differences in both mission and organizational need to interact with nonpublic entities. Analyzing this implementation at the program level of analysis provides insight into the operation of individual organizations and the differences in how they react to changes in program direction over time.

Program-level analysis provides a better level of understanding of managerial behavior than would standard organizational-level analysis when analyzing the
implementation of a program such as the chronic care model. Using the organization’s behavior as the unit of analysis to describe program performance eliminates discussion of the behavior that occurs at the organization’s departmental level because focus remains at the higher, overall enterprise level. Program-level analysis describes performance outcomes specific to program objectives, so it can improve the understanding of how administrative behavior (seen at the executive level) was dictated by program-level requirements. This provides a more direct understanding of the linkage between managerial focus and outcomes in program focus.

When studying at the program level of analysis, behaviors—or characteristics—of the program are evaluated. As a concept, critical success factors (CSFs) are defined as “the limited number of areas in which satisfactory results will ensure successful competitive performance for the individual, department” (Rockart, 1979). The CSFs are well defined at the program level, at which level of analysis they detail the key metrics of success that guide the program. Qualitative differences in CSFs exist between private- and public-sector entities for the same types of programs (Frye, Gulledge, Leary, Sommer, & Vincent, 2007; Rosacker & Olsen, 2008). When a program from the private sector is adapted for use in the public sector, achieving success is likely to be more difficult due to the differences in the CSFs. Further, once an operational program derived from an environment external to the public sector is applied within the public-agency setting, the ongoing strategic management of the implementation faces challenges not seen by private-sector counterparts. As noted by Grover Starling (2008):

One should not discount the difficulty in applying strategic management—or whatever one calls these ideas—in the public sector. Unlike a private sector chief operating officer, an agency head must share power with other key players when formulating policy and lacks complete autonomy and control during implementation. (p. 232)

CSFs are only one type of catalyst that drives administrative behavior. Recently within the public sector, a movement toward administrative reform has led to increased adoption of operational practices that originated in the private sector (Williams & Lewis, 2008). Although both structural and legal obstacles act to contravene managerial actions in the government sector (Goodsell, 1993), the prevalence of operational practices designed to improve operating efficiency is increasing. Operational practices are defined as organizational or administrative behaviors intended to alter performance in some meaningful manner (Goodsell, 1993). Improved transparency in the public sector amid this movement of administrative reform has increased the use of new private-sector-based operational-process techniques. An example is the increased use of the process-improvement technique called “Lean,” which is used to improve efficiency by public agencies (Radnor & Walley, 2008).

Other examples of these practices include the use of balanced scorecards and also pay-for-performance models by agencies (Brown, 2010). These operational practices are quite prevalent in the public health care sector, with agencies such as Centers for Medicaid and Medicare Services and local, county-level health departments using reported health data on screenings and treatment of the chronically ill to differentially pay bonuses to providers of health care under their contractual terms. Despite evidence questioning their efficiency and efficacy (Casalino & Elster, 2007; Freeman, 2002), these models continue to
be used—likely due to their ability to provide legitimacy, as suggested by Scott, Ruef, Mendel, and Caronna (2001).

Operational practices are often shared between sectors—or, at the minimum, these practices originate on the for-profit private side and are adopted by agencies when environmental changes call for such. The catalysts for these changes are not well identified within the literature. It appears that, unlike in the for-profit sector, these changes are adopted more slowly and not necessarily due to the vagaries of economic necessity (Goldsmith & Eggers, 2004; Naschold, 1996). They are more politically motivated and place emphasis on the appearance of efficiency (e.g., the Government Performance and Results Act and the movement for new public management, or NPM). While the literature describes the differences between public-sector workers’ behaviors and those of their for-profit, private-sector counterparts, it does not provide for an adequate understanding of why isomorphic behavior occurs in the adoption of operational programs. Boston, Martin, Pallot, and Walsh (1996) notes several inherent differences between the two sectors:

1. Degree of market exposure—reliance on appropriations
2. Legal, formal constraints—courts, legislature, hierarchy
3. Subject to political influences
4. Coerciveness—many state activities unavoidable, monopolistic
5. Breadth of impact
6. Subject to public scrutiny
7. Complexity of objectives, evaluation and decision criteria
8. Authority relations and the role of managers
9. Organizational performance
10. Incentives and incentive structures
11. Personal characteristics of employees

Dissecting just one of the above elements described by Boston et al. (1996) could provide a significant contribution to knowledge of public-sector or private-sector operational challenges. Combining and understanding of two or more of these dimensions could lead to an understanding of why certain potential catalysts of change are suited to enabling successful change better in one public-sector setting than in another. Such an awareness might even change how we determine which catalysts will create sustainable change. A public agency lacks the profit motive that drives the use financial incentives to motivate employees in the for-profit private sector. However, introducing a new classification of employees at a salary range higher than those of the standard set of classifications might be a technique used by a public agency to attract and motivate employees in order to achieve certain goals. While the use of these financial incentives alone may not describe the reasons for implementing a new program, it may provide insight as to how such a process enabled success of the program. How the catalysts of change translate into actual decisions to embark on the change process is another microcosm useful in understanding of differences between the sectors (Nutt, 2005).

This dissertation contributes to understanding the catalysts to change and the decision-making process by this corrections service agency in a unique way. While changes to operational practices or operational programs within the public sector tend to be slower due to cross-cutting concerns related to administrative oversight tenure, budget, and agency complexities (Carnevale, 2003), this case study provides context within the rapid-
cycle-improvement setting of a public agency. Administrators in the public sector tend to look to enhance resource capabilities through collaboration over long-term strategic planning, as was shown to be the case in the collaborative governance and public-private partnership discussion earlier in this chapter. The nature of the top-down receivership structure, however, combined with the hiring of several for-profit and not-for-profit private-sector executives into the receivership, led to the environment studied here. Executives were driven by short-term objectives and were required to establish partnerships and collaborative structures in a time frame shorter than what a typical public agency would undertake for such ventures. While the type of work and strategy sought for implementation was familiar to these executives, the temporal element and certain aspects of environment were quite different.

The receivership provided a more autonomous structure under which thoughts and vision could be transformed into action—so long as evidence could be provided by pilot program outcomes and backed up by internal administrative expertise experience. The true catalyst for change in this study was the federal government, by way of federal court order, imposing the demand for change upon the public agency to ensure the humane treatment of persons as stipulated by the Constitution. The translation of that into a viable vision required competent management at the actionable level. Implementation of this vision via a program that enabled positive and sustainable outcomes to improve the health care of prisoners (and thus fulfilled the receivership mission) required much beyond the federally ordered catalyst for change. It required a well-planned execution of technical and nontechical tasks combined with interventions on management to ensure performance. The first step of the program implementation was selection of the right health care delivery model to ensure success in achieving the vision of the receiver.

**Chronic Care Model Overview**

The chronic care model (CCM) first developed by physician Edward Wagner under the Improving Chronic Illness Care program (and supported by the Robert Wood Johnson Foundation and W. A. MacColl Institute for Healthcare Innovation) draws from the best research and practice, and it provides a framework for improving care for people with chronic conditions (Wagner et al., 2001). A breakdown of the model’s elements and operating framework is provided later in this chapter. Due to its success in improving patient outcomes and enabling organizational change around the model’s elements, it was selected for implementation within the correctional environment to achieve the mission set forth by the receiver. With the decision made to adopt this model, the problem of successful implementation lay ahead. Success was defined as the improvement of health outcomes for the prisoner population. As previously noted, many challenges stood in the way of successfully implementing this program and achieving improvements to the delivery of care that improved health care outcomes. In addition to obvious problems cited by Boston et al. (1996), Carnevale (2003), and Starling (2008), health care delivered within prisons significantly differed from the private-sector model.

Custodial concerns—maintaining the order of prisoners and their collective actions—trumped the delivery of health care services. For example, it was observed during this study that medication pill lines were established by health care teams but were modified to suit the needs of custody staff. Were a fight to occur while inmate-patients queued to receive their medications for treatment of their various conditions, then the delivery of medications on that line would cease until the custodial concern were taken care of. If, for
some reason, the appropriate custodial officers were not present to assist in the movement of prisoners to receive medication or other health care services, the delivery of care would then be interrupted until such time that custodial personnel became available. The observation that maintaining order among inmate populations takes priority over health care concerns is additionally well documented in the literature (Lin, 2000). Outside this environment, the potential for violence is not generally present, nor was it considered when the chronic care model was developed. The closest analogy in the private setting would be the lack of availability of a responsible individual to provide transport for an infirmed person requiring treatment at a particular facility of care. Such details of the logistics of health care delivery are not considered when models of care such as CCM are designed and implemented. The fact that one can simply receive the care offered, if provided in the most efficacious manner of delivery as possible, is assumed in these models.

Given the barriers to successful implementation of this particular model in this agency, what conditions are necessary for success in this setting? Removing the layers of complexities mentioned above will provide a solid conception of how generalizable the findings provided herein are. We begin with an explanation of the chronic care model as originally developed and implemented outside the custodial environment.

**Chronic Care Model: Private-Sector Implementation**

In his work in primary care medicine related to chronic disease, Wagner recognized that there were major impediments to the delivery of high-quality care for chronic illness. He noted that “chronically ill patients need time with their providers, regular assessments of clinical, behavioral, and psychosocial variables, and ready access to other resources such as pharmacists, nutritionists, and social workers” (Wagner, Austin, & VonKorff, 1996). Figure 1 provides a visual representation of the initial conception of the model used in United States primary care settings. During a nine-month pilot program funded by the Robert Wood Johnson Foundation, an early version of the model was reviewed by an advisory panel of experts and was then compared with the features of leading chronic-illness-management programs across the United States. The model was found to have improved care in a meaningful way and, as a result, Improving Chronic Illness Care (ICIC) subsequently became a national program of the Robert Wood Johnson Foundation. It was launched in 1998 with the chronic care model at its conceptual core. Since that time, different sectors of the medical field, beginning with primary care physicians, have begun to implement CCM into practice, helping to manage patients with chronic diseases.
The structure of CCM consists of six foundational pillars: community resources, healthcare organization, self-management support, decision support, delivery-system redesign, and clinical information systems (Figure 2). Figure 1 illustrates the integrated nature and intent of CCM. The model calls for the education of patients while requiring them to become active in the care of their chronic illness, incorporating them into a practice team that is striving for improved outcomes. Effective bidirectional communication between the medical providers for a patient with a chronic disease condition such as diabetes is central to execution of the model. The early objectives of CCM included helping people with chronic illness by utilizing a coordinated program of quality improvement, research, and evidence-based practice. To test the efficacy of the chronic care model in the area of quality improvement, the ICIC program looked for the improvement strategy that had the best evidence base while showing the most promise as an effective strategy. The practitioners chose the breakthrough series (BTS) as their improvement strategy. The BTS is a collaborative learning method designed in 1995 by the
Institute for Healthcare Improvement. The BTS is designed to help organizations close that gap by creating a structure in which interested organizations can easily learn from each other and from recognized experts in topic areas in which they want to make improvements. A BTS collaborative is a short-term (6- to 15-month) learning system that brings together a large number of teams from hospitals and clinics to seek improvement in a focused topic area (Institute for Healthcare Improvement, 2003).

<table>
<thead>
<tr>
<th>CCM Model Element</th>
<th>Description of Meaning</th>
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<tr>
<td>Organization of Health Care</td>
<td>A health system’s business plan reflects its commitment to apply the Chronic Care Model across the organization. Clinician leaders are visible, dedicated members of the team.</td>
</tr>
<tr>
<td>Delivery System Design</td>
<td>Regular, proactive planned visits which incorporate patient goals help individuals maintain optimal health and allow health systems to better manage their time and resources. The visits often utilize the skills of more than one member of the care team.</td>
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<tr>
<td>Decision Support</td>
<td>Clinicians have convenient access to the latest evidence-based guidelines for care for each chronic condition. Continual educational outreach to clinicians reinforces utilization of these standards.</td>
</tr>
<tr>
<td>Clinical Information Systems</td>
<td>Health systems harness technology to provide clinicians with a comprehensive list of each of their patients with a given chronic disease. This list, also known as a patient registry, provides clinicians with the information they need to track their patients' health status and minimize complications.</td>
</tr>
<tr>
<td>Patient Self-Management</td>
<td>Patients are encouraged to set goals, identify barriers and challenges, and monitor their own conditions. A variety of tools and resources provide patients with visual reminders to manage their health.</td>
</tr>
<tr>
<td>Community Resources</td>
<td>Community resources, from schools to government, non-profits and faith-based organizations, bolster health systems’ efforts to keep chronically ill patients supported, involved and active.</td>
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Figure 3. Elements of the chronic care model.

The Chronic Care Breakthrough Series Collaboratives began in 1999 in partnership with the Institute for Healthcare Improvement. Using a clearly defined change package based on CCM, the BTS Collaboratives provided participants with proven tools and information to assist them in making the requisite changes within their system. As the collaborative program developed, the Health Resources and Services Administration’s Bureau for Primary Health Care launched a demonstration project to reduce disparities in care quality given to the clients of community health centers. A multidisciplinary research team from University of California at Berkeley and the RAND Corporation undertook a four-year research study of the ICIC’s three earliest Chronic Illness Care Collaboratives (ICIC, 2011). Findings from this joint analysis, entitled the Improving Chronic Illness Care Evaluation, were positive. Utilizing the collaborative technique enabled the primary care practice teams to make many changes in the way they cared for patients with chronic illness. It was concluded that the evidence suggested improvements in patient outcomes resulted from this intervention.
Subsequent to the late 1990s, more evidence in support of the model appeared. Due to the general popularity of the model, in 2001 ICIC’s three-year Targeted Research Grants Program provided funding for peer-reviewed, applied research that focused on addressing critical questions about the organization and delivery of chronic illness care within health systems. Nineteen projects were selected, providing grants totaling approximately $6 million dollars backed by the Robert Wood Johnson Foundation. The research included evaluations of interventions such as group visits or care managers, observational studies of effective practices, and the development of new measures of chronic care. The settings for these studies were primarily community or private health care. Identifying the types of organizations that fare better at improving outcomes for particular disease states continues to be a question for the literature (Bodenheimer, 2003).

The not-for-profit and private sectors continue to embrace the CCM, and organizations like the ICIC continue to devote resources to its development and ability to improve on patient health outcomes. In 2001, the Institute of Medicine published what is now considered a seminal report in the field: *Crossing the Quality Chasm: A New Health System for the 21st Century* (ICIC, 2011). In the report, the Institute of Medicine outlines six goals for the transformation of health care in the United States. The report specifically references the work of ICIC and calls upon lawmakers at the federal level to make chronic disease care quality improvement a priority issue. Following suit, the National Committee on Quality Assurance and the Joint Commission, two nationally recognized not-for-profit entities that set standards for care in the United States, developed accreditation and certification programs for chronic disease management based on CCM (ICIC, 2011). At the same time, both the Joint Commission and the National Committee on Quality Assurance have released additional accreditations in the patient centeredness approach of the patient centered (i.e., Primary Care) medical home. These new certifications continue those proposed by CCM and advance the work of these pioneers. Joint Commission’s Primary Care Medical Home looks at organizations that provide primary care medical services and bases its certification on elements that enable coordination of care and increase patient self-management. This is a model of care based directly on the foundational work provided by CCM. Additionally, CCM currently serves as a foundation for new models of primary care asserted by the American College of Physicians and the American Academy of Family Practice.

In 2003, the ICIC program administrators convened a small panel of chronic care expert advisors and updated CCM to reflect advances in the field of chronic care from both the research literature and from the experiences of health care systems that implemented the model in their quality improvement activities. Five additional themes were incorporated into CCM, differentiating it from the 1998 version of the model (ICIC, 2011):

1. Patient safety (in Health System)
2. Cultural competency (in Delivery System Design)
3. Care coordination (in Health System and Clinical Information Systems)
4. Community policies (in Community Resources and Policies)
5. Case management (in Delivery System Design; p. 2)

Internationally, CCM also gained acclaim and was adopted for use in various nations, with researchers from nine separate countries using versions of the model in their
publications. The World Health Organization collaborated with the ICIC on a project aimed at adapting the model for developing countries. A major deliverable resulting from this joint venture was the World Health Organization’s (WHO, 2002) global report *Innovative Care for Chronic Conditions: Building Blocks for Action*. According to the ICIC’s website, recent years have seen growing numbers of initiatives across the country adopt the CCM, including statewide efforts in Indiana, North Carolina, California, Vermont Pennsylvania, and New York. New York Health and Hospitals Corporation, the largest municipal hospital and health care system in the country, kicked off their chronic disease collaboratives in 2004 with 15 clinical improvement teams working on diabetes and heart failure, and has since added teams addressing depression and pediatric asthma. In California, nine public hospital systems came together in 2004–2005 for the Chronic Care Learning Communities Initiative, working to transform care for diabetic patients. In conjunction with the Association of American Medical Colleges, ICIC’s collaborative work has recently included academic medical centers across the nation. (ICIC, 2011)

Numerous evaluations and comparative studies have been performed and published over the past decade. Common findings from the various studies indicate that organizational improvement, better coordination of care, and increased patient involvement have led to better health care outcomes for the chronically infirmed cohorts intervened upon.

Tsai, Morton, Mangione, & Keeler (2005) performed a meta-analysis of findings in the literature on CCM implementations. After studying 112 examples in which at least one of the elements prescribed by the model was employed, they concluded that:

- Just under half of the studies in the meta-analysis (46%) addressed only one aspect of CCM in the intervention. Self-management was the most frequently seen aspect of CCM with decision support observed least often.
- Statistically significant improvement was observed in clinical outcomes and processes of care for most studies.
- Having at least one element of CCM in interventions proved beneficial. (p. 486–488)

Their final finding concerning the improvements to care achieved by employment of a single element was a key point in the adoption of this model for use in the California Department of Corrections and Rehabilitation setting. Interviews of former and current receivership staff were conducted to provide context and understanding of findings in this study. As related by a former medical executive within the receivership, “we felt that if just one of the elements of the CCM could transform care out there, we stood a good chance of creating a big bang and throwing all elements of the design out there to make one or more change stick to the wall.”

**Chronic Care Model Implementation within the CDCR Environment**

In May 2007, a “turnaround plan of action” was published outlining the receiver’s strategies to reform the prison health care system based on Institute of Medicine principles. Subsequently, in May 2008, a strategic plan based on the original turnaround plan of action was developed and became the governing approval document for the introduction of the chronic care model under the receiver’s overall Access to Care Initiative.
Prior to the deployment of the receivership, the primary cause of preventable death among California inmates was uncontrolled asthma. As a result, improving chronic care became a high priority in the remedial plan of action. To improve care to the largest cohorts of known undertreated conditions, asthma was selected as a primary chronic disease, with diabetes as the secondary. The Chronic Care Initiative (CCI) was designed to address the heart of the receiver’s mission, which was to provide timely access to safe, effective, and efficient medical care. This initiative sought to improve the day-to-day medical care provided to all incarcerated population by creating standardized, measurable, and reliable access-to-care processes, sustainable after the health care system was to be returned to the state. The new system of care required fundamental changes in clinical roles and the way work was conducted throughout the prison health care system. It also required recruiting and developing internal capacity of human resources to lead, manage, and support the change process.

The outlined goals of the Chronic Care Initiative were:

1. Improve access to care by creating standardized, measurable, and reliable processes.
2. Develop integrated utilization/care management systems to support chronic care, specialty services referral, and infirmary/acute care.
3. Develop workforce competencies in the model for improvement, human factors, and reliability science to support sustainability after receivership.

These programs were phased in during early June 2009. The asthma component sought to improve asthma care (assessment of severity and control, appropriate use of steroids, self-management support, information systems, etc.). Additionally, it had the objective of improving asthma outcomes (elimination of preventable asthma deaths, reduction of asthma-related hospitalizations and emergency-department visits, and an increase in the number of symptom-free days).

Diabetic treatment under the new initiative had objectives similar to those of the asthma component. The objectives of the diabetes component of the program differed from the asthma module in that the program did not focus on the reduction of diabetes-related deaths. Practice reviews did not identify diabetics as having an abnormally high mortality rate; however, improvements were sought in the numbers of hospitalizations and specialist treatment visits. While both chronic care conditions were intriguing areas of study for the program’s implementation, this paper focuses on the diabetic portion of the implementation because the earlier phase of asthmatic treatment did not result in sufficient data to enable proper analysis.

During the preparatory stage of the Chronic Care Initiative (CCI), a not-for-profit consulting organization with correctional health care and learning collaborative experience was selected to assist the California Prison Health Care Services project team. A statewide system assessment was conducted between January and April in 2008. Given the small window of opportunity under the federal receivership to accomplish the turnaround plan of action’s objectives, a very aggressive work plan and timeline was developed.

To develop the work plan and identify potential problem areas, the team first established a list of limiting factors relevant to the operational environment. It was
believed that in developing this list, the institutionalized nature of the organization and its key players could be catalogued. The factors could be utilized to address areas in which proactive focus and intervention efforts would be required in order to enable successful change on the part of long-tenured civil servants. The long-tenured employees were not capable of seeing all the flaws of their own routinized behavior because they had known no other ways. In their research on managing successful change in public-sector environments, Fernandez and Rainey (2006) have this to say about institutionalizing change:

Managers and employees must effectively institutionalize and embed changes. To make change enduring, members of the organization must incorporate the new policies or innovations into their daily routines. Virtually all organizational changes involve changes in the behavior of organizational members. Employees must learn and routinize these behaviors in the short term, and leaders must institutionalize them over the long haul so that new patterns of behavior displace old ones. (p. 172)

The theory under which the team operated was adopted from the above and related research on organizational change. Fernandez and Rainey discuss managing change once the change plan has been implemented and tasks are underway. To be innovative, the CCI team sought ways to stay ahead of the change curve and thus looked to capture variables of interest related to places where proposed change could get stuck by administrators unable to see how their usual behaviors and actions prevented successful change management. As a result, the plan that was developed (and discussed below and in subsequent chapters in greater detail) included tasks specific to the implementation of the chronic care model in the health care setting. The team, in its proactive approach to implementation, identified aspects of organizational behavior that were important to track on the management side and designed methods to track and trend this behavior. Once tracked and trended, these data were used to develop interventions on managers to motivate their behavior in ways the team felt would enable the long-term success and sustainability of the changes at hand. Further, the catalog of behavior or aspects within the environment that were known to have likely deleterious effects on the proposed changes was used to redevelop the private-sector chronic care model itself.

In restyling the model to accommodate the public sector’s differences in institutionalized behavior and critical success elements, it was believed that failure in implementation could be minimized. One former member of the team and manager within the Nursing Division of the Receivership stated in a post-hoc interview,

Many of the executives, including myself, came from the “outside”. Since we were recruited from outside of CDCR, we brought ideas of change to the system that the system and long-tenured state managers weren’t ready for. Knowing that we knew that we had to understand what our barriers to implementation would be. Our primary analyst took a catalog of what our challenges would be relative to the constructs of the program we wanted to implement. Then we set about in developing a plan to alter the program to fit the criteria listed in the catalog.

Revisions to the private-sector version of the chronic care model were necessary to fit the model for a custodial setting. With health care needs put behind those of security, the
program architects found it necessary to modify and enhance aspects of the elements of the model. The first and perhaps least profound change was to the name of the program—to “Chronic Disease Management Program”—to avoid the perception that the inmate population would receive levels of care provision higher than enjoyed by the community at large because the program actually aimed to achieve a reduction in the cost of care while maintaining clinical efficacy of delivery and treatment. As a solely political move, it set the stage for the requirements of alterations to the rest of the model. Subsequent to discussions concerning the program’s name, each of the model’s standard elements were analyzed and repacked to fit the correctional environment.

Due to the lack of learning collaborative and quality improvement information in the correctional health care literature, an innovative two-phase approach to implementation was developed. Phase 1 focused on piloting the learning collaborative strategy, developing a modified diabetes-change package for a correctional environment, and establishing the pilot sites to test the model. Phase 2 had the objectives of statewide implementation of the tested and approved approach from the pilot, while additionally moving on to the next chronic condition for the initial six pilot sites. After identifying the pilot sites, the initiative began with intensive, multidisciplinary work sessions. Subsequent work sessions were performed using an enhanced learning collaborative strategy. Collaborative sessions were planned quarterly for the first year with teams from different sites attending four, two-day learning sessions separated by action periods. An intensive skills-based course on quality improvement was embedded into the learning sessions. Additionally, virtual learning workshops were inserted between the learning sessions to enable each collaborative to build workforce competencies on quality improvement technical skills. At the end of the learning sessions, pilot site teams folded into three regional learning collaboratives involving all 33 prisons to commence Phase 2 activities. The pilot-site champions served as presenters or mentors to the new sites during Phase 2, in a “train-the-trainer” approach. This approach required an initial round of training, and those trained during the first round were then deployed to train the rest of the staff.

Figure 3 shows the culturally embedded barriers to implement CCM, as determined by the team. These obstacles are described in greater detail in the following section. They represent the targeted aspects of the model, which, due to their private-sector beginnings, would not fit into the custodial setting without modification. The re-adaptation of the model to fit the public sector, and more specifically the custodial environment within a public agency, was designed over several months, and its output was the subject of lively debate. The price for the program’s implementation failure was greater than the sum of its investment of time and resources. As many of the receiver-level clinical managers were brought into the receivership organization as employees of a new entity, results were expected. Because those expectations for results were high, the preparation for program implementation was carefully planned. It was understood that the receiver’s efforts were focused on remolding institutionalized patterns of action. Initial efforts began with the breaking down of the six CCM elements into digestible tasks and deliverables within a project plan. A discussion then ensued concerning the parts of CCM that would not fit into the existing organization due to cultural barriers. Part of the debate mentioned earlier included the discussion among administrative staff with extensive CDCR experience, which provided insight about the barriers to a successful implementation in the custodial setting.
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| Organization of Health Care | A health system's business plan reflects its commitment to apply the Chronic Care Model across the organization. Clinician leaders are visible, dedicated members of the team.                                                                 | 1. Given budget crisis in the State, allocation of committed resources is an issue  
2. Pervasive and culturally embedded use of temporary clinical staff prevents continuous adherence to new policies |
| Delivery System Design   | Regular, proactive planned visits which incorporate patient goals help individuals maintain optimal health and allow health systems to better manage their time and resources. The visits often utilize the skills of more than one member of the care team. | 1. Custodial environment - issues of control and safety are of overriding concern; health care delivery is at best secondary |
| Decision Support         | Clinicians have convenient access to the latest evidence-based guidelines for care for each chronic condition. Continual educational outreach to clinicians reinforces utilization of these standards. | None identified                                                                                                   |
| Clinical Information System | Health systems harness technology to provide clinicians with a comprehensive list of each of their patients with a given chronic disease. This list, also known as a patient registry, provides clinicians with the information they need to track their patients' health status and minimize complications. | 1. Facility level clinical supervisory and above staff typically have significant tenure and are accustomed to paper based system and manual processes |
| Patient Self-Management  | Patients are encouraged to set goals, identify barriers and challenges, and monitor their own conditions. A variety of tools and resources provide patients with visual reminders to manage their health. | 1. Education of prisoners is not considered by general staff  
2. Minimization of 'keep on person' items for custodial reasons                                                                                                         |
| Community Resources      | Community resources, from schools to government, non-profits and faith-based organizations, bolster health systems' efforts to keep chronically ill patients supported, involved and active. | 1. Lack of true or desired involvement in community outreach programs on the part of otherwise busy headquarters staff and facility supervisors |

*Figure 3. Elements of the CCM and their institutional meaning.*
Deconstructing the Institutionalized Barriers to Implementation

Chronic Care Model Element: Organization of Health Care

A successful adoption of CCM is dependent on the visible support at all levels of the health care organization, starting with the senior managers. The federal receivership was established to provide the highest level of executive leadership support. The fiscal constraints of the state of California during the period of time when the program was implemented precluded the full adoption of CCM in the prison health care system. Clinical management that would otherwise have been dedicated to the coordinated care team was reduced. To increase managers’ visibility in relation to this program, attention was placed on coordination of care activities. This occurred at all levels, with headquarters-based administrative staff taking the lead in establishing the importance of the program by providing in-service trainings as well as on-site follow up support.

In support of learning collaboratives, clinical administrators and supervisory staff were brought to headquarters facilities to participate in interactive sessions. It was felt that the overall effect of change in organizational behavior would occur once staff worked in collaboration to define new processes. To create visible leaders, managers had a role in shaping CCM implementation in a manner that was personally meaningful to them and would thus empower them.

As the prison health care system is a single-payer, closed health care system, the potential to adopt evidence-based quality improvement strategies and practice guidelines is somewhat greater than would be the case in other health delivery settings. Because staff in a closed system is labor internal to the organization, the establishment of guidelines for these staff is an enabling factor for the full adoption of CCM policies with accountability for adherence to the model and results. The extent to which continuous, internally based labor learns and buys into the new policies and procedures equates to the extent to which sustainability of new methods can be achieved. In open health-delivery systems, clinical staff members are treated more as vendors than as internal staff. Because vendor relationships are managed differently than internal staff are, adherence to internal policies and procedures (like those required under CCM) is more difficult to achieve.

Some prisons institutionalized the use of temporary staff due to the relative ease with which these labor resources can be procured. Though temporary personnel cost was typically one and a half to two times the expense of a full-time employee, given the remote location of some facilities temporary staffing was preferred. This practice became institutionalized; as a supervising declared during interviews, “it was just the thing to do, because who has time to recruit and interview when using [temporary staff] was what everyone did.” She went on to note that “we certainly planned our staffing needs and secured the positions but look where we are … doctors can go [to the institution literally next door] and earn almost 25 percent more. Same with nurses due to their specialty care facilities. So no one ever looks to come here full time. And the chiefs here know that we are posting positions to be filled with [temporary staff]. And so the cycle goes.”

To overcome the cycle of temporary-staff usage, enable the sustainability of change, and maintain the spirit and knowledge of the implementation through consistent staff, a separate program was developed Nursing positions had the highest number of vacancies overall and also carried the highest fill rate. An analysis was commissioned to understand the ratio of clinical-position staffing relative to workload. Time-motion studies were carried out and combined with human resources initiatives designed to place employees in
“hard-to-fill” posts. The result of these efforts was a program dedicated to nurse staffing designed to work hand in hand with CCM implementation, ultimately enabling sustainability of the overarching transformation effort.

**An Additional Element of Health Care Organization: Local Champions as Catalysts for Change**

For health care quality improvement efforts to be sustainable in a correctional environment, local physician and nurse champions are required (Leonard, Graham, & Bonacum, 2004). Also important is an interdisciplinary implementation team involving a variety of health care team members. In the custodial health care setting, correctional officers are key stakeholders. Hence, identifying a local custody champion to be part of the interdisciplinary team was critical. The team of interdisciplinary champions was provided sufficient release time to participate in training and development in the areas of quality improvement, the chronic care model, and clinical diabetes content. Gaining the support of the custodial personnel who are responsible for prisoner control and safety related to health care needs was essential to overcome the institutional barrier. Correctional officers, and more specifically their captains and assistant wardens of health care, were brought into the primary care team meetings to be educated and trained on the methodology and processes. Training related to care policies and procedures was also provided to this interdisciplinary team. Feedback was received from team members on how to improve existing processes.

The CCI implementation team decided that, as cultural change agents, they ought to be provided time to plan, implement, and disseminate change after inculcating an understanding of what the change meant for them, their particular departments, and their coworkers. In this custodial environment, a reliance on one’s teammates and coworkers for success and safety was paramount, much as in work environments with nuclear reactors. In the receivership experience, champions were selected based on their expressed interest in serving as a catalyst for change in their pilot site; they were also identified as excellent clinicians who were respected by their peers.

Physician involvement is critical to a successful change effort and program implementation within a health care delivery setting (Leonard et al., 2004). Among the champions, the physician leaders’ commitment to the model and the change it represents must be asserted from the beginning. In order to achieve the goal of developing workforce competencies after receivership, several local institutions’ chief medical officers were recruited as the core project team’s clinical leaders. Practicing physicians and nurse consultants were recruited as quality improvement advisors.

**Chronic Care Model Element: Delivery System Design**

Health care delivery system design for prisons is a significant challenge. Contrary to models of care delivery external to the correctional environment, the primary mission of the institution from the custody perspective is security; health care delivery is procedurally treated as secondary. Typically, prisons are constructed with little or no space for clinics or medical supply storage. To implement a new CCM, the fundamental delivery system design had to start with the basics of creating adequate space for exam rooms so that the interdisciplinary team could provide integrated patient care.

Once the issue of clinic space was addressed, the delivery system was changed to shift from a siloed, single-provider approach to a patient-centered team model. The Chronic Disease Management Program’s pilot prison sites adopted a managed-care-based primary
care model and redefined the care team’s roles and definitions from a traditional solo-provider medical model to an interdisciplinary team model. Treatment of inmate-patients was thus transformed to enable a more comprehensive level of care with each visit, with the goal of increasing quality of care and reducing the need for future medical visits.

Given the state government’s bureaucratic structure and a heavily unionized workforce, it was necessary to create new job classifications in the organizational structure as permanent positions—for example, nurse executive, nurse clinical care coordinator, nurse case manager, and medical assistant. In California, state employees are unionized, and as a result managing labor relations proactively during the delivery system design was critical to minimize employee grievances, union resistance, or both. Transparency and proactive collaborative approach were the keys to minimizing resistance from the unions.

Planned group visits or health education classes (typically not reimbursed by the health insurance payers in the private sector) proved to be a strong component of the delivery-system design in the correctional system.

**Chronic Care Model Element: Decision Support**

The decision support element of CCM was probably the easiest to transfer content from the private sector to the correctional health care system. Evidence-based guidelines to support daily clinical practices were modified slightly to accommodate the prison environment. The software Interqual was used to establish guidelines for initial and follow-up visits for patient assessments under the pilot program. Health-education materials were modified to accommodate the language and reading level, as the average schooling level for inmates in the culturally and linguistically diverse California prison system is the seventh grade.

**Chronic Care Model Element: Clinical Information Systems**

At the time of the program’s design (calendar year 2008) the California prisons did not have enterprise-wide information technology connectivity and most clinic areas had no access to computers. The pilot prison sites therefore used the Chronic Disease Electronic Management System’s (CDEMS) Disease Registry for asthma and diabetes as a temporary solution. As additional staffers were needed to perform data-entry functions and there was limited physical clinic space, the adoption was challenging. Some pilot prisons employed a low-tech, manual, tickler-file approach of tracking inmate-patients with chronic conditions. To overcome the identified institutionalized barrier of using memorized manual processes and tools to perform work, the benefits of the new systems were discussed during learning collaborative sessions. Additionally, continuing educational unit needs were identified and promised for delivery through new automated solutions. Communications were coordinated with other departments concerning other aspects of computerization to be implemented within the facilities (e.g., electronic health records) as some of these programs were generally well accepted by staff. Staff also saw self-management support as reducing workload, and this further contributed to their acceptance of the changes.

**Chronic Care Model Element: Self-Management Support**

Confinement for high-security inmates is the primary obstacle to implementing self-management support. Custodial concerns and rules greatly inhibit the inmate-patients’ ability to perform aspects of self-management of routine care. For example, some prisons prohibit the use of a medical device known as a drug delivery spacer due to it being physically sharp with the potential to be converted into a weapon.
monitoring and insulin injections are typically performed by a licensed vocational nurse instead of by the patient.

Despite the custodial constraints against self-management, peer education was successfully utilized as a prominent strategy for promoting health education and compliance for inmate-patients at lower security levels. While clinical and custodial staff had institutionalized aversion to dealing with inmates on an educational level, the cultural processes by which inmates tend to mentor other inmates was strong. As described by an associate warden of health care who was involved in the pilot program, “they, particularly the older ones or the ones trying to get themselves together—like for parole or if they found God—are all about educating each other or at least other inmates who they talk to. I knew back then I wasn’t going to tell my officers to deal with making sure they got their information on how to control their disease, but I knew they’d be passing back and forth any sort of knowledge that worked for them that they got in triage or somewhere else.” The custodial supervisor in the above passage was describing the exact institutional obstacle of organizational process that was discussed at the outset of the planning process.

Custodial personnel were concerned with one issue—custody concerns. Nothing else mattered. To attempt to alter this highly institutionalized method of thought and process of organizational behavior was not the point of the CCM program, nor was it even considered feasible. Utilizing a train-the-trainer approach via another highly institutionalized process—that of inmate-to-inmate communication channels—was the preferred approach for successful implementation of the model and improved treatment outcomes.

In order to make best use of the inmate communication channels to enable self-management and to better understand the obstacles to self-management within this setting, a rudimentary analysis was performed. Two primary factors were identified during this analysis: self-efficacy and health literacy. From discussion sessions with the mental health clinicians, it was known that self-efficacy was a limiting factor for improving health in this population. Self-efficacy is generally defined as a person’s perception that she or he has the intrinsic capability to attain a goal (Bandura, 1977, 1993). The second limiting factor identified was health literacy, which, given the average educational level of seventh grade, was considered an impediment to self-management. While health literacy does not specify a certain level of understanding within a given point of time concerning one’s health, it does consider the inmate-patient’s ability to understand and follow a clinician’s general instructions.

A study of diabetic patients of various ethnic backgrounds found evidence that improvements in self-efficacy were associated with improvements in diabetes care outcomes (Sakar, Fisher, and Schillinger, 2006). After controlling for ethnicity and health literacy levels, researchers found that increasing self-efficacy was related to patient self-monitoring. On the basis of this and related research, the implementation’s management team concluded that nothing needed to be done immediately to improve health literacy or self-efficacy. It was felt that, as treatment outcomes improved over time, these related concerns would be naturally addressed and could be revisited as the program evolved. Patient education would be enhanced at the treatment encounter, and as treatment outcomes and inmate-patient experience improved due to better coordination of care, overall health literacy would improve due to the natural inmate communication channels.
Chronic Care Model Element: Community Resources

The community at large typically marginalizes the incarcerated. Due to the high rate of recidivism, parolees become part of the broader community when released and then return to the prison environment, potentially repeating this cycle several times. If not treated in the prisons, chronic conditions and communicable diseases eventually become public health problems. While under the custodial confines of the state, the incarcerated also access the specialty services and acute care from community providers when health treatment considerations warrant such visits. Hence, care coordination, case management, and discharge planning are critical functions connecting the inmate-patients with their communities. Clinical staff within CDCR performs these specialty care visits. Community resources for the newly paroled, however, were and continue to be scarce.

Community-level integration efforts with CDCR were not viewed as a priority by agency staff. While such efforts could have been integrated into CCM planning, they were not—perhaps due to agency staff’s overwhelming workload. While the literature does not currently state that community-prison integration is a primary aspect of successful CCM implementation, it is here argued to be significant due to recidivism. Unfortunately, however, it was not picked up as an element of overriding concern.

The prison health care reform effort in California did not address the linkage with the community through provider-network development and community partnership. However, preliminary steps were taken to establish the public-private partnership with the local public health agencies. Discharge planning for the parolees was also deemed critical as it helped ensure continuity of care and avoided burdening the emergency departments in the community.

This chapter has reviewed the process by which the new structure and processes proposed by the private-sector chronic care model were implemented within the public correctional setting. The challenges to implementation were met by carefully modifying the technical details of the program to fit the institutional context of the environment and the people who operate within it. Program level of analysis was introduced as a concept helpful for understanding the nature of departmental behavior because this project required collaboration and motivation at the program level, not at the overall organizational-mission level. This is an important concept that will carry over to the next chapter, where management behavior is explored. The actions considered by managers are reviewed at the program level of analysis in order to better understand both the motivation of this employee level and how their actions can be best guided to enable program-implementation success.
Chapter 3
Managerial Capabilities and Organizational Structure

Overview

The ability of managers to transform organizations is an often-visited topic, debated by various disciplines within both academic and practitioner settings. Successful implementation of a program is a learning opportunity for scholars of many domains because numerous associations between the variables of performance and outcomes can be drawn. The literature specific to implementations within the public sector, particularly those studies looking at leaders to manage the change, provides many examples of failure (Barrett, 2004; Hill & Hupe, 2003). Peeking through the fog of these tales of derailment are the few stories of hope: implementations that provide evidence of success despite the odds. An unsuccessful account can provide valuable lessons, as can a tale of success. Whether the research provides understanding of successful implementation or catastrophic failure, a strong analytical exposition of the details germane to the outcome provides opportunities to learn and establish best practices.

This research seeks to understand what is required for successful implementation of a program in a public setting undergoing substantial organizational change. Chapter 2 assessed the program implementation in terms of changes in the program to fit the environment. It in essence focused on the technical details of the implementation—the most difficult aspect of implementation, suggest Pressman and Wildasky (1973) and Hupe (2011). This chapter will provide insight into what is suggested here as the other major technical detail of implementation: the managerial capacity to perform.

The capacity to change is important to the implementation literature at two primary levels: managerial and organizational. The organizational context represents a macro viewpoint, whereas the managerial level is a more micro, detailed look at an entity’s capabilities. These studies review adaptation to internal or external changes with respect to the enterprise level’s resources or ability to flex and perform around the changes. Klarner, Probst, and Soparnot (2008) examined the World Health Organization and its organizational level change capacity. Theirs was a unique look into a public-sector (NGO) example of change capacity because it provided a look at the organizational context, the change process, and how the organization mobilized around lessons learned from change experiences. The authors concluded that analysis of an organization’s capacity for change better equips that entity to deal with planned change, thereby increasing chances for success (and organizational survival). Building this type of capacity generally requires a focus on three organizational processes: a learning-based culture, general support for change activities across the enterprise, and the change effort itself (i.e., program implementation; Gravenhorst, Werkman, & Boonstra, 2003; Klarner et al., 2008; Staber & Sydow, 2002).

An organization’s capacity for change is a direct function of available resources and its managerial adaptability. The managerial capacity for change relates to the ability of the administrative layer to perform and produce successful outcomes. Managerial capacity is the focus of this chapter because it helps to explain the overarching question guiding this work: how can public-sector management overcome institutional-level forces (e.g., routinized, embedded behavior) and implement a complex program successfully?
When implementing major reform efforts around health care delivery in the public sector, a manager’s capability to act represents a lever for success (Cassels, 1995). A more detailed treatment of what managerial capacity means in this dissertation’s framework is presented later in this chapter. Within the literature, however, a general association is drawn between managerial capacity and administrative flexibility, autonomy, and choice in actions (Ferlie, 2002). This association supports the argument that health care reform efforts, such as the one studied in this paper, require an administrative layer that is able to act in a manner not typically associated with a staid, bureaucratic internal environment. Correctional organizations are very bureaucratic (Jordan, 2011; Rengifo, Stemen, Dooley, Amidon, & Gendon, 2010), and the California prison system is no exception to this (Lindahl, 2011). This became a significant roadblock for the managers in the receivership under examination.

An interesting organizational feature of the California prison health system is that it employs its clinical staff and owns its primary care facilities. This model of owning resources rather than contracting out has implications for the nature of management behavior within the organization, and for how intervention programs can be planned and executed within this setting. For prisons located in geographical areas where it is difficult to recruit clinical professionals, CDCR contracts for outside specialty services and acute care on a fee-for-service basis (with no shared risk). As both a purchaser and provider of health care services, the state’s prisons system has complex organizational processes that required the coordination of activities and multiple types of personnel. Prior to the receivership, the breakdown and lack of attention to the coordination of health care activities in the correctional setting led to a degradation of services and negative health outcomes for prisoners. Managers lacked administrative flexibility in their actions and additionally lacked the ability to staff positions over the long term in geographically undesirable areas.

The managers in this setting were assigned the task of implementing a series of projects that were distinct parts of a central program of health care delivery reform. Implementation programs themselves serve as the change vehicles for organizations in that they adapt to situations or environmental challenges. The catalysts for change were discussed in the previous chapter, and these catalysts are the starting points for reform. The vision for change is then memorialized as tasks within a project plan, and typically it is the aggregation of related projects that constitute a program. Put another way, a program to be implemented may be dissected into its distinct parts, which are called projects. This chapter seeks to provide an understanding of how managerial capacity is controlled by organizational structure that is guided by project-level structure. The previous chapter used program-level analysis to focus on implementation theory. It provided a methodology that relied on developing program elements in a way that integrates with prevailing institutionalized processes. The underlying theory was that this type of approach would lead to successful program implementation. It relied on looking at program-level variables rather than at the organizational level of analysis. This chapter continues the theme of focusing on program-level variables, this time looking at management and their behavior. It provides an understanding of what managers can be taught to focus on during change-inducing processes.
Administrative Environment of the Chronic Care Model Program

Adapting models having their origin in the not-for-profit sector is not typically done in the public, correctional setting. The application of private-sector tools is a more familiar strategy, and even these require significant adaptation to maximize their understanding of a given situation (Williams & Lewis, 2008). Diffusion of innovation tends to be a more successful method for applying private-sector operational strategies within the public-agency setting (Christensen & Laegreid, 2007; Hartley, 2005; LaPalombara, 2001). Similar large-scale attempts at adopting non-public-sector program models for deployment within the vastly different structure of public works have resulted in failure (Fountain, 2001). The public sector is characterized as having a highly bureaucratic organizational structure, being inflexible to change, and behaving in an extremely routinized manner (Robertson & Senevirante, 1995). Within the private-sector setting there exist a different set of rules, structure of accountability, and goals to achieve, as compared with the traditional public sector. As such, difficulty in adapting innovations established in one sector to another is expected to occur.

Both the internal and external environments were diametrically opposed to the studied health care reform program, and only an external regulator (the federal government) insisted on its use and success. Adding to the complexity of program and environment were the challenges related to the strategy and technical details of the implementation. Previously, those details had only been addressed in private-sector settings, and therefore the nuances related to the public sector were not known. Outside the private sector, issues related to government-level political support is an important factor for public managers, especially under reform programs (Yang & Pandey, 2009). The extent to which administrators perceive support has a significant influence on managerial and employee behavior (Yang & Kassekert, 2010). These external concerns differ significantly from those typically faced in nonpublic sectors. Due to changes in political administrations, many decisions faced by public-sector managers related to the organizational structure are questioned, in order to maintain or bolster performance (Boyne & Meier, 2009). The comparative difference between how often, or the degree to which, these environmental challenges make administration difficult between sectors is not well described in the literature. What is clear, however, is that differences in routine administrative life exist between sectors, just as the types of obstacles faced tend to differ (Boston et al., 1996; Christensen & Laegreid, 2007).

Program implementations that require the establishment of collaborative, cross-functional workgroups develop their own policies and rules to guide individual and administrative behavior. These rules are defined within project-group-level cultures that form to define the norms of behavior, enabling the groups to work efficiently (Schein, 2004). According to Schein (2004), this is expressed through development of proprietary languages and parameters of acceptable group behavior. The internal environment of the projects established by the receivership was not exempt from the development of new cultures within the various project groups. The agency under receivership, CDCR, had its own highly institutionalized processes and well-defined set of cultures that had been established at agency inception (1912) and evolved over decades. Its structure and operational framework defined both the ends and means under which administrative actions were determined and undertaken (Scott et al., 2001).
The receivership organization was a much younger entity, with staff at both the management and worker levels less cohesive and culturally structured than CDCR. As a whole, the staff from CDCR was longer tenured within that agency and therefore had well-defined social network channels and routinized behavior—in sharp contrast to the newly established Receivership organization. The programs the receivership implemented, and specifically the CCM program, involved both CDCR and the receivership entities in terms of personnel, resources, time, and communications. This required integration involved establishing cross-functional teams from both organizations to carry out the work.

Studying the administrative behavior, then, of both entities at the organizational level, as suggested by the institutional-school approach, may be overly complex and likely entirely inaccurate. Workers had their home organizations in either CDCR or the receivership (known as California Prison Health Care Services, or CPHCS). Managers were connected across the receivership enterprise due to program-level work that integrated departments. These managers had their performance evaluated at the program level, not at the organizational level. This meant that accolades or retribution were the outcome of performance of the manager’s unit for each project within which they were involved. Their performance was tightly integrated with the output and deliverables produced by sister departments to which they were tied on a particular project.

The headquarters structure and its nature of accountability differed from management at the prison-facility level. Within the prisons, managers (whether directly reporting to the receivership or to CDCR) were evaluated based on their areas’ performance, not overall statewide performance. Whereas successful delivery of project tasks was the headquarters’ focus, inmate-patient health care outcomes and the passing of regulatory audits were the prison manager’s focus. The receiver-level projects were designed to ultimately lead up to the improvement of inmate-patient health and regulatory audit results. Indirectly, the managers at both levels had their missions tied together, but they were separated by a temporal gap. This difference in focus changes the method by which we can understand administrative behavior at both organizations and how work was viewed and approached by these managers.

The managers participating in this study primarily held clinical professional managerial posts, such as chief of pharmacy, because they were clinical specialists. Within the receivership, the administrators were bureaucrats and had statewide responsibility, holding the highest-level positions in the department. Job titles for the highest-level administrators within CPHCS often mirrored the titles for their direct reports at the prison level. For example, the highest administrator of the nursing division within CPHCS was titled the statewide chief nurse executive. Each prison also had a classification for its head of nursing, entitled a chief nurse executive (CNE). The use of the designation statewide showed the difference in authority level and represented the matrixed or indirect relationship of the CPHCS administrator to CDCR highest-level manager.

The prison-level clinicians at the non-management level in the departments of nursing, mental health, dental, pharmacy, medical, and ancillary services (i.e., medical records) all reported to a chief- or director-level individual within the prison. For example, a staff psychiatrist reported to a chief psychiatrist (who in turn had a matrix reporting relationship to the CPHCS chief of mental health). Below the chief/director level was an intermediate layer of supervisor staff. The levels and numbers of supervisors varied by institution and by clinical division. Nursing and mental health, for example, required far
more labor resources than did dental, and therefore the levels of supervisors were greater in these former two divisions. For example, an institution may have had 100 nurses on staff and therefore required three levels of supervisory staff.

Each clinical area, with the exception of pharmacy, required significant nursing staff, and therefore this division ultimately had the greatest number of staff throughout the prisons. Division of labor in this group was great and, administratively speaking, the layers of supervisory staff that developed over time within CDCR were commensurate with the highly specialized and large workload carried by the division. Staff-level workers were licensed vocational nurses or registered nurses who were managed by supervisor registered nurses (SRNs). The SRNs had three levels of successive importance: I, II, and III. Each step up in supervisory level within nursing represented a significant advance within the administrative hierarchy, with both salary grade and workload accountability increasing accordingly. Prior to the receivership, the highest position within the division was a director of nursing (DON). When the CPHCS structure was later formalized by clinical functional area, the statewide chief nurse executive developed a mirror position at the prison level with the same title to replace the DON role. As an entirely new state-classified position, it carried new aspects of responsibility.

This process was replicated within the other clinical departments, with the receivership level having a statewide head to which a prison-level clinical administrator indirectly reported in matrix style. The prison-level clinical head reported directly to the prison-level head of health care (called the health care chief executive officer), which in turn directly reported to the federal receiver. This position was a structural anomaly; this position existed as the only clinical-area lead role that did not have a CPHCS-mirrored lead position. This is to say that no statewide chief executive officer of health care was created. The healthcare CEOs reported directly to the receiver, with no indirect supporting relationship within the CDCR structure. This complex reporting structure is shown in Figure 4.

Among the greater challenges created by this structure was the negative impact on managerial capacity. Due to the variance in scope between the CDCR and CPHCS managers, the concentration of resources for important tasks differed based on what the manager determined as important. While CPHCS executives were only interested in output related to projects, CDCR managers cared about the goals—measures of patient outcomes. Organizational structure dictated the managerial capacity to move the organizational-level mark of success. As discussed in previous chapters, it is necessary to understand management behavior at the program or project level in order to analyze and match motivations to actions.
As depicted in Figure 4, both the healthcare CEOs (prison level) and the statewide executives (receiver level) reported to the receiver. Indirectly, the statewide executives over dental and mental health reported to the receiver through the head of the third organization involved, Division of Correctional Health Care Services (DCHCS). The DCHCS maintained its own organizational agenda, while its goals and mission were tightly coupled with CPHCS. The dotted line relationship in Figure 4 depicts the matrix relationship between the two entities.

McGuire (2006) noted that collaboration and networking are two skills attending the successful modern-day public manager. The organizational structure faced by managers within this program required the development and use of these skills because all work carried out under this program was highly collaborative in nature, and, as shown by Figure 4, geographically complex. In practice, a deputy receiver oversaw much of the day-to-day operations of these three objectives—disjointed yet tightly coupled entities.

While it may be envisioned that this deputy role could create a new level of hierarchical confusion, no significant issues arose in practice. The disengagement from daily operational issues on the part of the receiver was due to the necessary bifurcation of duties between the political and operational. This situation is akin to the division of labor observed in the private sector between a chief executive officer and his or her chief operating officer or president (Zhang, 2006). The practice, however, of having two rather disjointed administrative layers between three organizations reporting to the same individual did lead to operational issues. The reasons behind this were the often-differing requirements of the individual statewide executives as compared with those of the local healthcare CEOs. The CEOs tended to embrace a more short-term, day-to-day focus on operations and the allocation of scare resources therein. Statewide leadership was more project-oriented because their mutual supervisor, the
receiver, required them to develop and implement the turnaround plan of action that was defined by the receivership mission. The healthcare CEOs, in turn, were expected to assist in the smooth implementation of the various and often simultaneous projects related to the mission, while also serving as the operational head of the prison health care unit. The consequences of this clash of perception, objectives, and decision timing were unfortunately only briefly studied and captured in post-implementation interviews. This was due to the timing of the establishment of the CEO position, which occurred toward the end of the CCM implementation.

It was previously noted that within the CPHCS structure two distinct groups of administrators existed: There were the individuals hired to serve within the receivership entity at the end of their civil-service careers, bringing decades’ worth of invaluable experience of CDCR operations and institutional knowledge. The other group consisted of those bringing a fresh perspective, having no significant correctional environment experience within the state but providing decades of private-sector health care operational expertise to the new organization. A fundamental shift in receivership focus occurred over time in response to the environment. Due to the state’s budget crisis and renewed focus on eliminating high-dollar programs, the legislature of the state focused on the prison system and the proposed $8 billion dollar budget, seeking to cut the program in part or whole. While the federal courts underlying the receivership did not make it possible for many of the proposed legislature reductions to occur, the strong political emphasis placed on the spending decisions within the receivership created the need for a change to occur. Managers that were recruited for higher-ranking headquarters vacancies and for prison-level healthcare CEO roles were only those with strong fiscal management experience in their backgrounds.

The group of administrators reporting to the receiver was initially a diverse group of people with many at the statewide executive layer selected from the private sector. These individuals brought immense experience from private health care sector work such as running departments or systems in leading health care organizations around the nation. Much of this labor pool was secured on a contract basis, and their reimbursement arrangement was commensurate with their vast experience. During this time (early 2009), which was the period coinciding with the start of the pilot phase of the CCM program, there were only a handful of high-ranking administrators on the clinical side who were drawn from existing posts within CDCR. During observations made under this study, a cost-cutting change was made in which many of the early-phase administrators were dropped in favor of lower-cost, full-time employee executives having years of experience within the state’s correctional system.

Much of the vision of private-sector program leadership had already been put in motion prior to the shift, and it was part of the new cohort of managers’ role to complete the implementation started by managers who had different thought processes and objectives. The focus of the new group of executives was guided largely by habits learned over a career’s tenure within CDCR, which differed from the modus operandi of the previous, more innovative set of managers. It was assumed that continuity of work in progress would be natural because the incoming managers had years of agency experience. The new administrative group enjoyed years of relationship-building experience, which enabled some prison-level staff administration and worker-level personnel to work more
in synch with the vision set forth by the headquarters personnel. Said one prison’s chief psychiatrist:

Th[e]y [headquarters’ statewide directors and chiefs] finally got what our issues were. It was like banging heads early on. You cannot set policies and audits in motion, like telling a female psychiatrist that she must perform waist circumference checks using a tape measure in a room alone with an inmate. That level of proximity plus the tape measure as a possible choking weapon is just begging for trouble. I’m sure that’s a good idea and standard protocol in a regular hospital or outpatient treatment office, but this is not a regular place.

**Management Capacity Assessment**

There is an unresolved debate among researchers about whether public-sector managers differ from their private-sector counterparts (Nutt, 2005; Rainey, 2003; Rainey & Bozeman, 2000). At the core are the differences in managerial capacity between sectors, which may describe some of the underlying factors that constrain or enable managers to act and react. While this study is not designed to resolve that debate, this section will describe a tool used in this program implementation that may be useful to researchers in capturing the elements of managerial capacity.

A management-assessment model was developed in conjunction with a survey of the same name to assess how close managers were to the work under their control. Proximity to work was a concept used by this author in previous managerial work experience and is best described as a manager’s knowledge of all relevant information needed to make sound administrative decisions. It is measured by a manager’s involvement in the work carried out by her or his staff. Arguably, traits such as intelligence or even charisma could be attributed to the perception of how close a manager is to his or her work, if an outside observer asserts such perception. When measured directly by the manager, however, and on a self-reported basis, an estimate of the person’s level of engagement or involvement with his or her scope of responsibility can be determined. The knowledge derived from this self-assessment is useful both in rating a manager’s ability to rate staff and in understanding how involved he or she is in the work performed within the department. If a manager is disengaged from the work performed, then it is unlikely that preventative processes are in motion to avoid fatal project delays. Should the manager be disengaged from the day-to-day issues when a project-related task is at risk or slips a deadline, it will already be too late to prevent the resulting consequences. In order to keep projects on target, plans are put together and managers are made aware of issues before they become problems. An informed managed is an engaged manager, and this improves a project’s likelihood of success (Jaafari, 2001).

It has been asserted that successful program implementation requires managers to be informed about the work for which they are accountable. This is based on the assumption that managers are competent and capable of making decisions. Unpacking this assumption illuminates an important and fundamental organizational characteristic that must be present. Managers must be empowered to act, and if they are, it is here asserted that their competence in judgment will enable them to guide a company to successful performance. It is not argued here that managers are the sole motivators or even arbiters of organizational or program-level performance. As Barclay (2009) states, “buy-in and following orders are necessary from staff to make any change work . . . since it is often up to
the employees to make the change work, it should be the employees that are focused upon” (p. 4). Vlachoutsicos (2011) agrees, noting that successful managers rely on skilled subordinates, and additionally the teams that the managers oversee must also be empowered or else the unit is slated for failure. In his work on techniques for success in the clinical environment, Edgar Staren (2009) argues that an effective manager enables his or her staff differentially to be empowered according to individual abilities. This relates back to the original point of this section—managers must be close to the work they oversee.

The ability to recognize the positive motivators that are effective for each individual staff member requires knowledge of the staff on an individual basis. Familiarity with the work performed on an ongoing basis enables a manager to be effective at understanding staff’s issues as well as providing knowledge of potential barriers to success. For this reason, the manager is studied in this chapter with the hopes of identifying aspects of management behavior that can be improved on to enable program-level success. Managerial capacity is the ability for administrators to understand the work requirements and to make situational specific adjustments accordingly. This definition is more granular than that provided by Meier and O’Toole (2011) in their evidence-based analysis of managerial performance. These researchers treat managerial capacity in a manner similar to this study’s approach. They look at public-sector management as their setting of choice, and they define managerial capacity as “the managerial talent and effort that could be mobilized in an organization when needed” (p. 186).

To assess managerial capacity with the goal of linking results to program-level performance, a managerial model of assessment was used. The model selected was previously created for assessing management behavior for a program implementation in the for-profit sector. The assessment model was developed by the author of this paper and successfully used to gauge and intervene on the behavior of leaders in a $500 million dollar health care program implementation. The statewide chief nurse executive who was responsible for the CCM program’s implementation (who had a for-profit and not-for-profit background) approved the model and survey tool for use.

The model used is shown in Figure 5. It relates and maps to a 10-question survey called the Leadership Level Assessment Survey. It was designed to focus beyond the overarching strategic management process (Poister & Streib, 1999), and assess how in touch managers are with the work that is being performed under their responsibility. Previous attempts to define strategic management processes have not focused sufficiently on the process of management and how to improve performance over time. The concept of management levers has been proposed (Poister & Streib, 1999), and information provided about how to plan strategically (Poister & Streib, 2005). However, detail is lacking about the steps to take as an administrator to improve performance. Figure 5 shows the constructs of the managerial assessment behavioral model, and is best read from right to left.
Leadership Behavioral Assessment Model

<table>
<thead>
<tr>
<th>Items</th>
<th>Scale</th>
<th>Summary Measures</th>
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<tbody>
<tr>
<td>1. Knowledge Sharing</td>
<td></td>
<td>Output Quality</td>
</tr>
<tr>
<td>2. Thought Provoking</td>
<td></td>
<td>Quality of Vision</td>
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<tr>
<td>3. Leadership Expectations</td>
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<td>Consultant Quality</td>
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<td>4. Consultant Expectations</td>
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<tr>
<td>5. Consultant Communications</td>
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<tr>
<td>6. Excitement on Information</td>
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<td>Involvement</td>
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<td>7. Information Flow</td>
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<td>Intensity</td>
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<tr>
<td>8. Number of Meetings</td>
<td></td>
<td>Involvement Quality</td>
</tr>
<tr>
<td>9. Types of Interactions</td>
<td></td>
<td></td>
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<td>10. Input Solicitation</td>
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*Figure 5.* Managerial behavioral assessment model.
The model is based on the theory that administrators who are more involved in the work they are responsible for, and have confidence in the work as it is performed, will improve organizational performance. This theory can be broken up into two distinct parts: confidence and engagement. The first relates to manager's involvement in the work for which they are accountable. When managers at any level in an organization increase their personal involvement in the work at hand, the result can be an improvement in the oversight of the work product. This is true only if the workers perceive this as genuine interest and solicitation of feedback is made. Receipt of feedback on management vision should be included in order to avoid the perception of micromanagement. Micromanagement, or demanding oversight, is an inherently faulty strategy as it is generally deemed as too invasive by staff and is counterproductive (Brady & Helmich, 1984; Alvesson & Sveningsson, 2003).

Increasing both the amount and types of involvement in work activities can also lead to improved confidence that the output will be sound. It was additionally theorized by this author based on observation that managerial confidence could additionally result when workers regularly communicate work status and share deliverable output with management prior to deadlines. Regular communication of work status refers to proactive discussions concerning status, risks, or issues pertaining to the current set of work. When work is provided for review with little to no time allowed for manager input and possible rework (i.e., nonproactive communication), the level of managerial confidence in the work is not maximized.

It was asserted at the start of this study that when managers are intimately involved with the work performed in their area, confidence in performance results. The concept of self-efficacy within the management literature is well documented in relation to its association with confidence in performance or output. Gist and Mitchell (1992) define self-efficacy as “a person’s estimate of his or her capacity to orchestrate performance on a specific task” (p. 183). They found that improvements to self-efficacy led to increases in performance (Gist, 1989; Gist, Schwoerer, & Rosen, 1989; Goleman, 2001). The use of this measure was to assess how confident administrators were in various aspects of program delivery that coincided with their ability to act on any identified areas of deficiency. It was felt that measuring aspects of confidence in the program, which could not be directly remedied, would not serve the purpose of attempting to use the survey itself as an enabling tool for all levels of management.

Measuring confidence in the model is assessed on the basis of three variables: quality of the work output, quality of the vision about the implementation plan, and quality of the external vendor consultants utilized. As there was an extensive use of external consultants within the program, as is typically the case in large-dollar projects, understanding the quality of their work product on an ongoing basis was vital to ultimate program success. As vendor consultants were paid on a time and materials basis, the quality of their work output could slip without being tied to financial compensation, with the exception of future compensation in the case of contract termination. Understanding their work output could prevent any cascading catastrophes, including the costs involved with recruitment and retention of new consultants or of full-time personnel. The receivership program used a vast amount of consultants, with the project management office noting that it had more
project managers under contract than any other U.S. government agency—with the single exception of NASA.

Managerial involvement in the work was the other assessment measure of the management assessment model and survey. This measure relied on two aspects to gauge the level of managerial involvement: intensity of involvement in the work at hand and quality of the manager’s attempts to be involved with subordinate staff. The assumption underlying this part of the model was that the more involved managers become with the work at hand, the more visible their presence becomes, and therefore worker performance would improve. The theoretical basis for this was derived from auditing theory, which holds that results-based management is most effective when evaluation techniques are applied frequently (Mayne & Zapic-Goni, 1997). To assess a manager’s level of involvement in his or her area in the program, survey questions queried various perceptions. Questions were designed to understand information flow as well as the types and frequencies of communications that made clear to managers which work should be performed in order to enable successful outcomes. An important assumption underlying this survey was that administrators were competent enough to perform their duties and further were enabled to take action in any area they felt deficient as a result of the survey results.

**Interventions on Administrative Behavior**

Surveys were administered quarterly beginning in fall 2009 to both prison-level and headquarters-level managerial staff. The data were submitted anonymously and, after aggregation of results was performed each quarter, a review of the results was undertaken to elucidate general areas of program deficiency as reported by the management within the receivership or involved with implementing receivership programs. Once areas of deficiency were identified, intervention programs were constructed and rapidly (within two weeks) deployed to management staff at both levels.

The managerial behavioral assessment model as expressed in Figure 4 shows five scale items that were the target areas for improvement when survey results showed groupings of negative responses. The survey was scored on a 5-point Likert scale with responses ranging from “strongly disagree” to “strongly agree,” with neutral in the middle. After baseline assessments were performed, it was found that perceptions were low in all predefined areas: output of work quality, quality of the applied program vision, quality of the what was expected of or required from consultant partners, the level of involvement managers had to their accountable work, and finally the quality of the interaction they had with the workers they had performing the work. As a result, interventions were developed to improve on all five measured areas.

For each of the model’s scale items as shown in Figure 4, an intervention was designed and implemented in the fall of 2009. The interventions designed did not vary from period to period in their general constructs, listed below:

1. **Output Quality**
   a. To remedy issues related to quality of the output, workshops were developed. Departments that had high numbers of personnel on the project and numerous layers of supervisory staff had supervisors paired with higher-level managers and directors in 30-minute weekly sessions, during which time structured program related work was reviewed. Program-project staff presented plans, and supervisory staff presented updates on work in progress. The stated goals of these meetings were to
open a dialogue concerning work planned and in progress, discuss upcoming events related to the work, and identify any dependencies around the work from supporting areas. All staff involved in the project work, regardless of department, was invited to participate and provide feedback. The spirit and intent of these interactions were to improve the expectations and knowledge of the work at hand and for all to understand how the work related to the vision or implementation plans.

b. Departments that had lower staffing levels and were involved in the program followed the same workshop meeting format; however, rather than supervisory staff being paired to higher supervisory staff or director-level executives, workers generally met directly with their areas’ executive management.

2. Quality of Vision
   a. This factor was defined as the alignment of manager’s vision with the program’s vision. It was asserted that the extent to which supervisory staff were not in synch with executive management’s vision, performance within the program would be hindered. If supervisors did not believe they could carry out their manager’s vision, it was expected that worker output would suffer. To improve upon negative responses, managers were asked to join a monthly webinar conference call, during which time their feedback was solicited on what the executive sponsor of the program could do to improve or change direction, which was set via the project plan itself. Email notification was sent three weeks in advance with a request for questions to be submitted and addressed during the call. An open question-and-answer period was provided during the meeting to address any questions that were not emailed in advance of the session.

3. Consultant Quality
   a. This measure refers to the quality and amount of support and communication provided by consultants assigned to project tasks. As the managers were empowered to terminate or request replacement of consultants who were underperforming or did not fit within the department’s culture, it was important for managers to remain tightly coupled to the work these external vendors were providing on their behalf. Improvements to scored deficiencies in this area took the form of weekly 30-minute meetings, during which delivery consultants were tasked to inform a group of functional area managers on work progress, risks, issues, dependencies, and drafts of cross-functional work in progress. The goal behind the provision of drafts of cross-functional work was to spur conversations concerning resource allocation and the like between managers of varied areas. To remedy any issues in work quality, follow-up conversations between project personnel and the managers were planned.

4. Involvement Intensity
   a. When issues related to the intensity of the level of involvement were identified, it was important to get the managers more connected to the work at hand. This was achieved by polling the area’s project managers to assess managerial attendance at key information meeting sessions.
Managers who were found to be deficient in attending key informational meetings were paired with project managers. The project managers were tasked with delivering key communications to their assigned sets of managers to keep them informed and intimately involved with the work.

5. Involvement Quality
   a. **Involvement quality** refers to the adequacy of communications between managers and staff. Underperforming areas were considered the fault of either project managers’ approach to or their execution of communication interaction with managers and their workers. Remedies were established by working with the project leads or managers who were directly responsible for developing and managing the communications of their project areas to ensure that all tasks remained on track and that all relevant parties were informed of progress and involved in decision making meetings in a proactive manner. Training was provided for deficient project personnel and expectations tracked via the project management office directly with the executives of the deficient area.

   After each quarterly survey, the appropriate intervention methods were applied to the areas with weak scores. In accordance with the model’s framework and assumptions, the interventions were aimed at improving managerial intimacy with project work, and thus their ability to rate the level of quality of that work. An interesting unintended effect of the interventions over time was the gradual breakdown of departmental silos. For one project, auditing of medication administration processes, a more natural collaborative process arose for the development of corrective action plans. Managers at the prison level were already collaborating as a result of scheduled, intervention-based meetings, and they were able to carry this work forward by allocating time after these prior to their working together on plans required for different projects they shared.

   **Remarks**

   The use of surveys to assess the nature or behavior of managers is not a new concept. In the early 1950s, a tool now commonly referred to in the management literature as the Ohio questionnaire was developed to assess administrative behavior (Fleishman, 1953). This style of assessment was further developed (Ekvall & Arvonen, 1991, 1994), and measured three distinct dimensions: change-centered, task- or production-structure-centered, and employee-relations-centered managerial behavior. These three foundational dimensions are developed into profiles of management (Ekvall & Arvonen, 1994; Sellgren, Ekvall, & Tomson, 2006). Numerous other assessment tools have been developed to track and understand managerial behavior along these dimensional lines (Bass & Avolio, 1990; Castro & Schriesheim, 1998; Conger & Kanungo, 1998; Yukl & Nemeroff, 1979; Yukl, Wall, & Lepsinger, 1990). These readily observable and measurable criteria have certain central themes as their theoretical bases. For the change-centered dimension, the assessed behavior focuses on major innovative improvements (in processes, products, or services) and adaptation to external changes. When evaluating administrators around task- or production-centered behavior, the primary objectives review high efficiency in the use of resources and personnel, and high reliability of operations, products, and services. The primary objectives of relation’s behavior analysis seek to assess and guide a strong commitment to the unit and its mission. Additionally, a high level of mutual trust and cooperation among members develops. None of these tools can explain and motivate the
managers to improve upon their program performance. Multiple surveys would have had to have been employed and tailored to understand administrative behavior within this context. For example, the Conger-Kanungo scale (Conger & Kanungo, 1994) seeks to understand the nature of charismatic leadership in a change context. By itself, it would be insufficient to understand how managers perceive the nature of work performed or to be performed under a transformational program structure; therefore, it would have to be either altered or combined with other proven valid assessment tools, which would make the measurement process overly onerous.

Many theories and approaches for studying administrative behavior within organizations have been developed and advanced over the past half century. Overarching themes have asserted the rational limitations of management behavior, blaming either the individual actor or the organization for the inability to adapt to the parameters of the situation (Simon, 1997). In other literature, frameworks have appeared supporting a more micro approach to the dissection of administrative behavior by focusing on the roles and interactions between rational actors within the confines of the organization. This approach, known leader-member-exchange (LMX) theory (Dulebohn, Bommer, Liden, Brouer, & Ferris, 2011), is another approach that focuses on interactions between workers and staff.

The next chapter will describe the effects of the implementation of the chronic care model, a part of the receivership’s health care reform program. The data presented in the following chapter depict organizational performance based on the efforts of program development (discussed in Chapter 2) and attention to the improvement of management behavior as explained in the present chapter.
Chapter 4
Chronic Care Model Program Implementation: Research Design and Findings

Overview

The essence of the previous three chapters’ information translates directly to the overarching theme of this study’s contribution to the literature: a framework for implementing a not-for-profit health program within a public sector organization. The evaluation and understanding of program implementation calls for, “careful, retrospective assessment of the merit, worth, and value of administration, output, and outcome of government interventions, which is intended to play a role in future, practical action situations” (Vedung 2000, p. 3). The findings presented within this chapter detail the program implementation’s outcomes in relation to the study’s goal of improving health care outcomes.

At the outset of program implementation, clinical administrators from all primary care disciplines were tasked by the Receiver to improve the outcomes of health care treatment. The Chronic Care Model as designed by Edward Wagner (Wagner et al., 2001), was thus adopted and then adapted to fit the correctional environment. The goal of the program was to reduce unnecessary health care delivery by treating the inmate-patient in an improved and comprehensive manner—as opposed to the status quo model for care delivery. As such, reductions in emergency room visits and specialist physician visits were established by the program administrators as key performance indicators. Additionally, it was felt that the management of the inpatient admission and length of stay process could be effectively impacted by this model without reducing clinical efficacy in treatments. As a result, length of stay and the number of admissions to inpatient facilities were viewed as outcomes of significance. To determine overall program performance, the data must reveal whether inmate-patients in the CCM pilot sites used less specialist care, less emergency department care, were hospitalized less, and, when hospitalized, had a shorter length of stay than those not receiving their medical care under the CCM model.

The rest of this chapter will discuss the data from the chronic care model program implementation in support of the research question: Were healthcare outcomes improved as a result of program implementation? Information will first be presented about the prisons that were selected for pilot-phase implementation and the factors underlying those decisions. To provide knowledge of the cohorts reviewed, descriptive statistics will be then presented, followed by statistical analysis of program output.

Methods

Data Collection

Six pilot prisons sites were chosen by the implementation team to pilot test the chronic care model developed for the correctional environment (see Chapter 1). A primary consideration for selection of the first six sites was that each site did not differ from the other sites in terms of geographic and physical characteristics because such variance affects a prison’s proximity to outside health delivery facilities (e.g., local specialty treatment care centers). Physical characteristics primarily referred to the layout of the institution relative to the operational requirements for health care delivery under the model. Space allocated to the housing of medical records or treatment rooms was the primary concern. This approach was taken to address the statewide variability in prisons
in hopes of maximizing generalizability of results. The benefit to generalizable results was ease in the development of a model that could be spread to all 33 prisons. Staffing levels were also taken into consideration, as prison sites that had many vacant clinical positions were not considered sustainable for the model’s long-term implementation and therefore were not suitable as ongoing reference points for best-practice identification after implementation.

The six pilot facilities were expected to collect and report performance measures; however, most data remained in paper charts and ad hoc spreadsheets. Data collection for this study was limited to a partially completed registry database, weak administrative systems, and information from paper charts from all six institutions, as well as control data from inmate-prisoners at prisons not utilizing CCM. The improvement of health care outcomes was pivotal in assessing effectiveness of the model as it was implemented in this setting. During the early stages of the implementation (the period of time defined by which pilot assessments were underway), the program’s success was dictated solely by improving health care delivery as mandated by the receiver’s mission.

Research Design

In order to assess the possible association between the CCM program and diabetes-symptom aggravations resulting in the need for treatment, a population-based, 1:2 retrospective-matched cohort study was undertaken in the second phase of the program’s implementation. During the first phase, asthma was the disease condition of focus while the program was developed and its fit with the environment understood, all while utilizing the breakthrough collaborative approach discussed in an earlier chapter. For Phase 2, diabetes was the focus, and during this phase live-data-collection and aggregation methods were substantially improved over Phase 1’s construction efforts. The matched cohort retrospective methodology was chosen in order to understand whether the CCM program had an impact on the subsequent need for care for the chronic care condition. The study’s treatment population of patients with diabetes was selected from the six pilot institutions implementing the CCM program, having physical yards of varying security and medication requirement levels. The control population was chosen from the remaining non-pilot prisons also having a complex mix of security and clinical needs. Individuals included in this research were identified as having diabetes and were at least 18 years of age (as no juvenile facilities were included).

Sample Selection and Sample Size

Eligible inmate-patients were identified via review of the universal health record (i.e., patient charts). Inmate-patients were identified for inclusion into the case group by presence of their record in the diabetes registry, and their residence in one of the CCM pilot sites. The registry was populated with all known diabetic inmates in January 2009 and was continuously updated as new diabetic patients presented for care. The criterion for submission to the registry database was an encounter or admission specifically related to diabetes, as indicated by the presence of a diabetes-specific International Classification of Diseases (ICD)-9-CM code—codes 250 (diabetes mellitus); 250.0 (diabetes mellitus without mention of complication); 250.1 (diabetes with ketoacidosis); 250.3 (diabetes with other coma); 250.4 (diabetes with renal manifestations); 250.5 (diabetes with ophthalmic manifestations); 250.6 (diabetes with neurological manifestations); 250.7 (diabetes with peripheral circulatory disorders); 250.8 (diabetes with other specified manifestations); 250.9 (diabetes with unspecified complications); and 362.0 (diabetic retinopathy).
The registry identified a total of 72 diabetic inmates in the pilot CCM facilities. Each patient case was randomly matched with two controls on the basis of stratifications of age, sex, prison security level, disease condition (only registry-based diabetics), and length of incarceration during the time of the study. Control patients were also selected from the registry but were restricted to non-CCM implemented facilities. These 144 control inmate-patients represented the highest number of controls that could be matched from non-CCM yards. As a result, the study design yielded a 1:2 matching. Matching was performed in SQL Server 2003, explicitly grouping identified inmate-patients from the control population to those in the case cohort based on matches on the aforementioned variables.

The variables chosen for matching were selected due to their ability to compare individuals within groups based on their prison behavior related to health care utilization. Certain combinations of age, security level, and sex were known to create varying conditions for the seeking or utilization of healthcare beyond the actual need for health care services (e.g., the use of a treatment visit to remove oneself from the prison yard). To minimize differences in this type of health care utilization behavior, matching was performed on these variables. In order to minimize differences between comparison groups in the type of treatment sought, inmate-patients were matched on the disease state under consideration (diabetes). Length of incarceration was used as a matching characteristic as another control for behavioral considerations, as inmates may act differently if a known transfer or parole action is pending. The matching criteria for age were based on three levels of stratification: 18–25, 26–45, and 46+. Length of incarceration was employed to match prisoners on the basis of their lengths of stay within the environment. There were four groups for this matching criterion: 0–6 months, 6–12 months, 12–18 months, and 18–24 months. Prison security level was based on five distinct levels:

1 - Open dormitories without a secure perimeter
2 - Open dormitories with secure perimeter fences and armed coverage
3 - Individual cells, fenced perimeters and armed coverage
4 - Cells, fenced or walled perimeters, electronic security, armed officers inside and out
5 - SHU (security housing unit), a prison within a prison

No sampling method was required because the full target population was available for review in a manageable and cost-effective manner. As noted above, the total population of inmate-patients under treatment of the intervention method was 72. Logistic regression was the primary method of analysis used on the data that were gathered to address the four research questions. LeBlanc and Fitzgerald (2000) suggest a minimum of 30 participants per predictor variable in the analysis. A rule of thumb states that there should be at least 10 yes and 10 no, and preferably 20, for each predictor variable (Peduzzi, Concato, Kemper, Holford, & Feinstein, 1996). With two predictor variables in each analysis, the generally accepted principle suggests 60 to 80 participants to detect significance for the logistic regressions. The data utilized in this portion of the analysis representing 100% of the population available for study met this logistic-analysis standard.
Data Analysis Techniques

Data were analyzed using SPSS v.19, Excel 2010, and SQL Server 2003. Descriptive statistics were initially calculated to describe the sample demographics and the research variables used in the analyses. Logistic regression was then used to assess the association of independent variables of CCM intervention and age (used as a control variable) to dependent variables of emergency department visits, hospital visits, specialist visits, and length of stay. The regression models were used to explore the four research questions concerning the relationship between the CCM intervention and age of inmate-patient on health care outcome variables. Age—as well as its associated characteristics such as lifestyle patterns, which associate health-related behaviors to age groupings—is commonly utilized in the health literature as having predictive validity in the measurement of interventions (Slater & Flora, 1991). Within the correctional environment, this viewpoint of the literature was generally accepted; however, given the state of egregious neglect that brought the receivership into effect, health interventions would stand on their own merit without regard to age differences. Additionally, because health-related behaviors considered within the literature were not generalizable to daily-life conditions prevalent within the custodial environment, the interventions brought under the receivership would not be subject to the age effect. Testing of the model in relation to health outcomes then first commenced with the addition of age as a control variable, with CCM as the independent variable, in a multivariate logit model.

Multivariate Analysis

Logistic regression is appropriate when the dependent variable is dichotomous, meaning there are two possible outcomes for the dependent variable, allowing one to directly estimate the probability of an event’s occurrence (Stevens, 2009). The logistic regression can be used when the predictor variables are continuous, discrete, or a combination of both. This analysis permits the evaluation of the odds of membership in one of the two groups based on the combination of predictor-variable values. The overall model significance for the logistic regression was examined by the effect of the independent variable, presented with a \( \chi^2 \) coefficient. A non-significant chi-square statistic represents a good model fit to the data. The Nagelkerke \( R^2 \) was examined to assess the percent of variance accounted for. Predicted probabilities of an event occurring were determined by \( \text{Exp}(B) \) (Tabachnick & Fidell, 2006). Predictors with negative beta weights will be interpreted as the event coded as 1 to not happen.

Logistic regressions by design overcome many of the restrictive assumptions of multiple linear regressions. For example, the assumptions of linearity, normality and equal variances are not made. The major assumption is that the outcome variable must be dichotomous. There should be no outliers in the data. A larger sample is recommended fitting with the maximum-likelihood method; using discrete variables requires that there are enough responses in each category. Given the data used in this study, the logistic-regression approach is therefore appropriate.

To mirror the presentation style found in the subsequent results section, the research questions are broken out into their discrete elements below.

Research Question 1

Does CCM treatment, controlling for age, establish an observed effect specialist visits?

H10: CCM treatment, controlled for age, does not affect specialist visits.
H1₃: CCM treatment, controlled for age, does affect specialist visits.

To examine Research Question 1, a logistic regression model was constructed to assess whether CCM treatment, controlling for age, establishes an observed effect upon the number of specialist visits. CCM treatment was coded as 0 = control group and 1 = CCM treatment group. Age was a continuous variable measuring the participant’s age in years. Specialist visits were measured as 0 = no visits and 1 = one or more visits. CCM treatment and age are the independent variables of the logistic regression. Specialist visits serve as the dependent variable in the logistic regression model.

Research Question 2

Does CCM treatment, controlling for age, establish an observed effect on the number of emergency department visits?

H2₀: CCM treatment, controlled for age, does not have an effect on the number of emergency department visits.

H2₃: CCM treatment, controlled for age, does have a measurable effect on the number of emergency department visits.

To analyze Research Question 2, logistic regression was conducted to assess whether CCM treatment and age establish an observed effect on emergency department visits. CCM treatment was coded as 0 = control group and 1 = CCM treatment group. Age was a continuous variable measuring the participant’s age in years. Emergency department visits were measured as 0 = no visits and 1 = one or more visits. CCM treatment and age are the independent variables of the logistic regression. Emergency department visits is the dependent variable in the regression analysis.

Research Question 3

Does chronic care model (CCM) treatment, controlling for age, establish an observed effect on hospital visits?

H3₀: CCM treatment, controlled for age, does not affect hospital visits.

H3₃: CCM treatment, controlled for age, does affect hospital visits.

To examine Research Question 3, a logistic regression was conducted to assess if CCM treatment and age together serve to provide an effect on the number of hospital visits. CCM treatment was coded as 0 = control group and 1 = CCM treatment group. Age was a continuous variable measuring the participant’s age in years. Hospital visit was measured as 0 = no visits and 1 = one or more visits. CCM treatment and age are the independent variables of the logistic regression. Hospital visits is the dependent variable in the logit model.

Research Question 4

Does CCM treatment, controlled for age, establish an observed effect on length of stay?

H4₀: CCM treatment, controlled for age, does not affect length of stay.

H4₃: CCM treatment, controlled for age, does affect length of stay.

To examine Research Question 4, a logistic regression was conducted to assess whether CCM treatment and age establish an observed effect on length of stay. CCM treatment was coded as 0 = control group and 1 = CCM treatment group. Age was a continuous variable.
measuring the participant’s age in years. Length of stay was measured as 0 = less than 6 days and 1 = 6 days or more. CCM treatment and age are the independent variables of the logit model. Length of stay is the dependent variable in the logistic regression model.

**Results**

**Sampling Statistics**

To validate the 1:2 matched cohort design, T-tests were performed on matching variables to ensure that the differences of means between treated and controls were not different from 0. The corresponding two-tailed p-values are showed in Table 1; they are all greater than 0.05, thus providing validation of the matching process.

**Table 1**

*Independent Group T-Test of Matched Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Difference between means</th>
<th>Two-tailed p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age grouping</td>
<td>-.097</td>
<td>0.068</td>
</tr>
<tr>
<td>Sex</td>
<td>0</td>
<td>1.00</td>
</tr>
<tr>
<td>Prison security level</td>
<td>0</td>
<td>1.00</td>
</tr>
<tr>
<td>Length of incarceration</td>
<td>0</td>
<td>1.00</td>
</tr>
</tbody>
</table>

**Descriptive Statistics**

Between June 2009 and June 2010, the CCM program for diabetes treated a total of 72 inmate-patients, who were matched to 144 control patients. The study was thus composed of 216 total inmates with diabetes. Table 2 shows that the average age of the entire study population was 53; men averaged 53 years of age and women 55. Within the population studied, women represented 29% of the population while men were 71%. For inmates with a primary diagnosis of diabetes upon hospital admission, the length of stay for inpatient care was reduced for inmates exposed to the CCM program by 22%.

**Table 2**

*Characteristics of Experimental and Control Groups*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Case (N = 72) mean</th>
<th>Control (N = 144) mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>54</td>
<td>53</td>
</tr>
<tr>
<td>Male sex (%)</td>
<td>70</td>
<td>71</td>
</tr>
</tbody>
</table>

Control patients demanded more care overall from specialists and facilities than did the CCM treatment group. On average, case patients were provided 18% more referrals to specialists than were the control patients (mean: 0.83 vs. 1.01). Hospital visits for inmate-patients in the control group outpaced those of case patients by nearly 2 to 1 (mean: 0.68
vs. 1.30). Emergency department trips related to diabetic care were rather infrequent for both groups (means of .13 for case, .19 for controls); however, there was a 30% difference between the two groups.

Research Question 1
Do CCM treatment and age tend to have an effect on the number of visits to specialists?

A logit model was established and then run in SPSS v19 to assess whether CCM treatment and age have an effect on specialist visits. The variable CCM treatment had two levels: CCM and not CCM. Age was treated as a continuous variable. Specialist visits were treated as 0 = no visits and 1 = one or more visits. The results of the logistic regression showed a good fit for the model, $\chi^2 (7) = 8.92, p = .258$, suggesting that CCM treatment and age accounted for (Nagelkerke $R^2$) 1% of the variance in specialist visits. CCM treatment was not a significant predictor of specialist visits, $B = -0.24, p = .436, OR = 0.79$. Age was not a significant predictor of specialist visits, $B = 0.02, p = .303, OR = 1.02$. The null hypothesis cannot be rejected; CCM treatment and age did not significantly predict specialist visits. Results of the logistic regression are presented in Table 3.

Table 3

<table>
<thead>
<tr>
<th>Source</th>
<th>B</th>
<th>SE</th>
<th>Wald (1)</th>
<th>p</th>
<th>OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCM treatment</td>
<td>-0.24</td>
<td>0.31</td>
<td>0.61</td>
<td>.436</td>
<td>0.79</td>
</tr>
<tr>
<td>Age</td>
<td>0.02</td>
<td>0.02</td>
<td>1.06</td>
<td>.303</td>
<td>1.02</td>
</tr>
</tbody>
</table>

Research Question 2
Are CCM treatment and age able to predict emergency room visits?

To examine Research Question 2, logistic regression analysis was performed in order to test the association between CCM treatment and age against emergency room visits. CCM treatment had two levels: CCM and not CCM. Age was treated as a continuous variable. Emergency room visits were treated as 0 = none and 1 = one or more visits. The results of the logistic regression showed a good fit for the model, $\chi^2 (7) = 6.84, p = .446$, suggesting that CCM treatment and age accounted for (Nagelkerke $R^2$) 0.6% of the variance in emergency room visits. CCM treatment was not a significant predictor, $B = -0.38, p = .526, OR = 0.68$. Age was not a significant predictor, $B = 0.04, p = .332, OR = 1.04$. The null hypothesis cannot be rejected; CCM treatment and age did not significantly predict emergency room visits. Results of the logistic regression are presented in Table 4.

Table 4

<table>
<thead>
<tr>
<th>Source</th>
<th>B</th>
<th>SE</th>
<th>Wald (1)</th>
<th>p</th>
<th>OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCM treatment</td>
<td>-0.38</td>
<td>0.61</td>
<td>0.40</td>
<td>.526</td>
<td>0.68</td>
</tr>
</tbody>
</table>
Research Question 3

Do CCM treatment and age establish an effect on the number of hospital visits?

In addressing Research Question 3, logistic regression was performed to assess whether CCM treatment and age had an effect on hospital visits. CCM treatment had two levels: CCM and not CCM. Age was treated as a continuous variable. Hospital visits were treated as 0 = none and 1 = one or more visits. The results of the logistic regression showed a good fit for the model, $\chi^2 (8) = 5.09, p = .748$, suggesting that age and CCM treatment accounted for (Nagelkerke $R^2$) 8.5% of the variance in hospital visits. CCM treatment was a significant predictor of hospital visits, $B = -1.13, p < .001, OR = 0.32$, suggesting that the CCM treatment group was 3.13 times more likely than the control group to not have a hospital admission. Age was not a significant predictor of hospital visits, $B = 0.03, p = .258, OR = 1.03$. The null hypothesis can be partially rejected in favor of the alternative hypothesis; CCM treatment significantly predicted hospital visits, but age of inmate did not. Results of the logistic regression are presented in Table 5.

Table 5

<table>
<thead>
<tr>
<th>Source</th>
<th>B</th>
<th>SE</th>
<th>Wald (1)</th>
<th>p</th>
<th>OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCM treatment</td>
<td>-1.13</td>
<td>0.32</td>
<td>12.37</td>
<td>.001</td>
<td>0.32</td>
</tr>
<tr>
<td>Age</td>
<td>0.03</td>
<td>0.02</td>
<td>1.28</td>
<td>.258</td>
<td>1.03</td>
</tr>
</tbody>
</table>

Research Question 4

Do CCM treatment and age have an effect on inpatient hospital length of stay?

For the answer to this question, regression analysis of the logistic type was run using CCM treatment and age as independent variables and having a single dependent variable, length of stay. As in the prior analyses, CCM treatment again had two levels: CCM and not CCM intervened. Age was treated as a continuous variable. Length of stay was treated as 0 = less than six days and 1 = six or more days. Interqual data were used in the determination of the six day cut-off as beyond a normal length of stay. Only those participants who underwent hospital visits were used for this analysis. The results of the logistic regression showed a good fit for the model, $\chi^2 (7) = 7.49, p = .380$, suggesting that age and CCM treatment accounted for (Nagelkerke $R^2$) 12.7% of the variance in length of stay. CCM treatment was a significant predictor of length of stay, $B = -1.58, p = .010, OR = 0.21$, suggesting that the CCM treatment group was 4.76 times more likely than the control group to not stay for six or more days. Age was not a significant predictor, $B = 0.04, p = .289, OR = 1.04$. The null hypothesis can be partially rejected in favor of the alternative hypothesis; CCM treatment predicted length of stay, but age did not. Results of the logistic regression are presented in Table 6.

Table 6

---

| Age     | 0.04 | 0.04 | 0.94 | .332 | 1.04 |

---
**Logistic Regression with CCM Treatment and Age Predicting Length of Stay**

<table>
<thead>
<tr>
<th>Source</th>
<th>B</th>
<th>SE</th>
<th>Wald (1)</th>
<th>p</th>
<th>OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCM treatment</td>
<td>-2.01</td>
<td>0.55</td>
<td>13.38</td>
<td>.001</td>
<td>0.13</td>
</tr>
<tr>
<td>Age</td>
<td>0.05</td>
<td>0.03</td>
<td>2.78</td>
<td>.095</td>
<td>1.05</td>
</tr>
</tbody>
</table>

**Table 7**

*Outcomes and Odds Risk for Experimental versus Matched Control*

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Case (N = 72)</th>
<th>Control (N = 144)</th>
<th>OR [CI]</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital visits</td>
<td>27.78</td>
<td>71.53</td>
<td>.320 [.185-.555]</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Specialist visits</td>
<td>33.33</td>
<td>38.19</td>
<td>.812 [.432-.1.53]</td>
<td>.517</td>
</tr>
<tr>
<td>Emergency visits</td>
<td>15.28</td>
<td>22.22</td>
<td>.749 [.255-.2.20]</td>
<td>.598</td>
</tr>
<tr>
<td>Length of Stay ( % patients exceeding 6 day threshold)</td>
<td>5.56</td>
<td>18.10</td>
<td>.191 [.052-.671]</td>
<td>.012</td>
</tr>
</tbody>
</table>

*Data is expressed in percentages of individuals.

**Table 8**

*Logistical Regression Output*

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Coefficient</th>
<th>Standard error</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital visits</td>
<td>-1.14</td>
<td>.280</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Length of stay ( % patients exceeding 6-day threshold)</td>
<td>-1.66</td>
<td>.661</td>
<td>0.012</td>
</tr>
<tr>
<td>Emergency visits</td>
<td>-.290</td>
<td>.549</td>
<td>0.598</td>
</tr>
<tr>
<td>Specialist visits</td>
<td>-.207</td>
<td>.322</td>
<td>0.517</td>
</tr>
</tbody>
</table>

**Discussion of Results**

The goal of the analysis was to understand the association between exposure to care under the new delivery model of care and subsequent need for expensive modalities of care (inpatient stay, emergency room trip, and specialist care). With respect to the sampling technique used, it is believed that no differential selection bias was introduced for selection of the case group because the entire population of diabetics constituted the case group. All known diabetics were a part of the study because they were a part of the registry. Individuals could not opt in or out of the CCM model of care, and when any inmate presented for care for the disease, he or she was entered into the registry. Bias due to follow-up was minimized in the matching design by grouping inmate-patients on the basis of length of incarceration. Bias, however, may have been introduced uncontrollably in the control group for inmate-patients who were misdiagnosed with diabetes as their presentation case issue.
Length of stay within the inpatient setting was examined to serve as a proxy for cost, as well as to signify severity of condition at the time of admission. It was presumed that existing organizational procedures in other areas related to policies on length of stay and discharge activities would control for confounding length-of-stay factors. The average length of stay for an inmate presenting with diabetes as the primary diagnosis was 4.8 days in 2009. An internal target of 6 days or under for lengths of stay of a diabetic admit was commonly accepted within this environment. As such, length of stay was analyzed as a binary outcome (>6 days = 1, <6 days = 0).

The outcomes of care looked at were: ≥1 hospital visits, ≥1 specialist visits, ≥1 emergency department visits (all assessed and tracked after inclusion in the cohort), and length of stay. Due to a lack of integrated data sources, some confounding effects such as treatment under other pilot programs (e.g., nurse staffing program, medical classification program) could not be accounted for or analyzed at the time of analysis.

Diabetes-related health outcomes found to have an association to the CCM program were those specific to the inpatient setting. After being selected into the study cohort, case patients made fewer visits to the hospital unit and additionally had shorter lengths of stay once admitted than did controls. This suggests that treatment under the new care model was successful in its goals of reducing the need for subsequent high cost care. Table 7 shows the odds ratios (OR) derived from the logistical regression output. The OR for hospital visits was rather low at .320 (range: .185–.555), suggesting that if a hospital visit outcome were to increase by 1, the odds ratio for an inmate-patient to be in CCM would decrease by a factor of .320. Put another way, the likelihood for a person to have an inpatient hospital episode for diabetes is smaller if enrolled in the CCM program than if not. This translates directly to the cost-avoidance feature of the program. As longer inpatient stays relate to higher costs per episode of care, the statistical results concerning length of stay are also quite pertinent to this discussion. The multivariate analysis reveals a statistically significant causal relationship between length of stay and the CCM program, controlling for age of the inmate. The OR for length of stay at an inpatient setting is .191 (with confidence interval of .052–.671).

No causal relationship between the use of specialists or the emergency department and the CCM program were found (Table 8). Given that, the only cost avoidance and health outcomes variables shown to have an association to the new program are due to the inpatient care setting. Emergency room admissions could have been problematic to address in terms of conclusions should the findings have indicated a causal relationship between the program and visits. Within the correctional environment, the emergency room can be used as by inmates as means of escaping the standard custodial confines. As a result, it is plausible that inmate-patients would claim the need for emergency diabetic treatment for reasons well beyond actual chronic care indication. From a resource perspective, this is especially relevant, as the inpatient facilities are often over-utilized and understaffed. Should the results be replicable outside of the pilot sites, costs related to overstaffing can be reduced, and the quality of care to those in need of a hospital bed possibly can be increased.

Conclusions

The data suggest that inpatient (i.e., hospital) treatment area is positively impacted by CCM delivery practices, which should be therefore the preferred model of care for the
chronically ill. Both the number of visits to the hospital and the length of stay once admitted were reduced under CCM.

As no experimental model existed to show the differences in implementation between the standard nonpublic-sector (un-adapted) CCM model and the version developed for use within the correctional setting, no analysis exists to substantiate a claim that the removal of the institutional barriers was required. It can, however, be inferred that the model in its un-adapted form would have likely failed, all other things being equal. In the absence of conclusive evidence regarding that inference, the success of the model in its variant form is clear. The data suggest a significant improvement in health care outcomes via delivery of care through CCM versus care provided by facilities in which the model had not been implemented.

The nature of care provided to inmate-patients in settings alternate to the inpatient room was less conclusive. Emergency room care treatment was not significantly impacted by CCM methods. As previously noted, this could be due to the use of this setting for non-health-care purposes (e.g., getting out of general inmate population) versus inpatient treatment, which has a triage function assigned to it and is used solely for medical needs. CCM was designed not to explore or reduce the nonmedical use of emergency care treatment to avoid prison life, and it is therefore likely that this behavior persisted despite a new method of care. It is theorized that should CCM be further altered to perform a gatekeeper function in triaging those seeking emergency care for apparent psychosomatic events, then reductions in use of this treatment setting would also be seen under the model. The answer to this, however, lays in future research.

The delivery of care by specialists, a gatekeeper function, would be required because the model as developed for use within this setting did not cover the referral process. Referral to specialist care was noted within the agency to occur for so-called “spillover care.” This type of care was related to workload and the desire to treat inmate-patients presenting with symptoms beyond either comfort or time levels. It was anecdotally suggested not that this type of behavior was pervasive among providers of care but rather that it be used in certain situations. As was the case for the treatment of behavioral patterns surrounding emergency care, specialist care referral processes were not explored within the model and were therefore not available for rigorous analysis in this section.

The results discussed in this section have provided an understanding of findings for the pilot phase of the program’s implementation. Of additional note, however, is the change over time of the issues under review in determining success of the model and program. While this phase was concerned with health outcomes and the improvement of care in concert with the tradition of the private sector’s implementation of the model, as statewide implementation gained approval the metrics of ongoing success changed significantly. Due to a change in the level of oversight once the pilot phase ended and because of increased scrutiny of receivership policies, the measures that occupied the most attention were changed to those of a fiscal nature. Effectiveness of the model to reduce dollars expended on care became the focus, and improvements to health faded in its relative significance. These new metrics are not reviewed within the scope of this study; however, implications to this fundamental shift in program focus will be reviewed in the following chapter, where the nature of administrative behavior under this program is explored.
Implementation results, as indicated by the data presented in this chapter, do appear to coincide with a positive statement made in a post-implementation interview with the former statewide chief nurse executive. As she noted, “If for no other reason than our moving the needle on reducing unnecessary visits for ongoing care for some of the inmates who were truly suffering, like some of the elderly and infirmed at CTF who previously did not receive the same level of care, the program was successful. Our original mission was to improve care, or the quality of care provided, and we did that quite well. As priorities shifted, things changed a bit, but I know we made a difference. The legacy of this will go on, because this is a model that works.”
Chapter 5

Chronic Care Model Program: Integrated Discussion

At present, there is no peer-reviewed literature available that looks at the management of organizational change within the health care correctional setting. According to a recent joint study between the Economic Mobility Project and the Public Safety Performance Project headed by Harvard professor Bruce Western, 1 in 100 U.S. adults is incarcerated. California state correctional costs alone exceed $50 billion dollars annually, and since 1980 the population placed under corrections has increased over 300 percent (California Department of Corrections and Rehabilitation, 2012). The literature covering health care within this rapidly increasing segment of the U.S. population is lacking. Therefore, the inclusion of a case study of well-managed change in this setting is important for the literature.

Planned organizational change appears to be a constant in an organization’s life. This type of change is now occurring at a quicker rate than has been the case over the past 30 years (Burke, 2011). As a result, the management of these change cycles is of greater concern for senior leadership in both public agencies and private companies alike. Organizational change overall is an incredibly broad topic. A search of the peer-reviewed literature or books available specifically on the topic of “organizational change” in the decade spanning 1990–1999 yields approximately 25,500 citations. This number nearly triples when searching for the same topics in publication between the years of 2000 to 2009, as about 70,000 results are returned. Incredibly, in just the two opening years of the 2010 decade (January 2010 to October 2011), there have already been approximately 18,000 relevant publications, which represents 70% of the entire body of work produced on the topic in the 1990s. Attempting to make sense of organizational life with respect to change efforts is a heavily researched topic.

Organizational Development (OD), a subfield of organizational change, has a significant body of work and has a sector of practicing consultants who advise managers of all sectors and guide them through change efforts. OD as a discipline is best described as “planned change that takes a systems approach and makes extensive use of collaborative techniques to both solve the immediate problem and leave the organization in a more competent state to handle future challenges” (Rothwell, Sullivan, & McLean, 1995, p. 25). This field concerns itself with the treatment of change and the defensive behavior viewed during the transformation process in organizations. Utilizing various research techniques, academics and practitioners explore topics of conflict resolution, management issues, systems theory, public-private differences, management reform, group dynamics, trust, hierarchy, and labor relations (Carnevale, 2003). The focal point of this research and its findings, which have been presented, are best categorized under this field of inquiry.

This study has developed an analysis of implementation at the program-unit level of analysis while the program’s technical details, as managed by administrators, were the focal points of understanding. Both managerial capacity and then adapting the constructs of the program itself to fit the institutional context were described as the two key details of implementation. The CCM program was considered as the independent variable in the quantitative analyses, while the program implementation itself served as the basic unit of analysis. This approach is not new, as it was taken from Hjern and Porter (1981). In their review of both public and private forms of program implementation, they argue for a multi-
organizational unit of analysis to view the implementation process. This implementation process is formed from within “pools of organizations . . . formed through processes of consensual self-selection” (p. 220). They viewed the traditional case study of a single organization as inadequate for understanding programs which fell under collaborate governance strategies. This dissertation reviewed a complex program that fell under collaborate governance. CDCR had a portion of its operations moved under federal control (CPHCS/receivership), while a third organization (DCHCS) was compelled under federal order to work in collaboration with the receivership to reform the institution in compliance with constitutional law.

The program-level unit of analysis provides researchers with a new perspective for understanding organizational change as seen by practicing administrators. There are many aspects of the change process that absorb the rational manager’s time and attention: budgeting, allocating labor resources, reporting results to superiors, evaluating staff performance, mitigating known risks, and political maneuvering to deliver on current and planned work. This says little of the other details surrounding the rational administrators’ thought process concerning how they approach work in light of other environmental considerations (Simon, 1997). One such additional consideration was reviewed in an earlier chapter when the planned tenure of managers was discussed. It was argued that executives within the receivership organization who had planned to retire in the near future had a different set of motives for carrying out work following established timeframes as their counterparts. These executives had a short-term focus and were less motivated to work and to navigate their teams through difficult challenges. The performance of these teams was expected to lag behind those led by motivated executives who held long-term focus. The extent to which the differences in motivation led to differences in work outcomes could not be explored under this research study because the data were not set up to support this type of analysis. It was known, however, through the interview process that there was merit to Rothenburg and Sanders’s (2000) lame duck theory, which notes that individuals tend to shirk their duties and commitments to their constituency when near retirement. Managers who had retirement planned during this study (i.e., the lame ducks) were noted by peers as exhibiting less effort and paying less attention to detail than those not close to retirement.

The challenges faced by the managers implementing the CCM program were reduced as a result of the upfront work performed by the management team during the planning phase. By outlining the aspects of CCM that were deemed to be in conflict with the institutionalized values or processes extant within the prison organization environment, a plan was enabled for development to obviate those implementation challenges (see Figure 3, Chapter 2). In the absence of such pre-implementation planning, it is doubtful that the program would have been operationalized as envisioned by the receiver, who, in this study, served as the policy maker. Any framework for implementation may be utilized; however, within the planning phase of the project’s lifecycle an objective model of the routinized behaviors that present barriers to implementation should first be undertaken. Once the plan for project execution is developed with all potential barriers accounted for, this study suggests, a tool to track and intervene upon administrative behavior should be used (see Figure 5, Chapter 2). Using this model requires the surveying of management personnel. Based on survey results, the appropriate interventions need to be developed with the goal of keeping the managers as close as possible to the work being performed under their
realm of control and accountability. Improvements to managerial capacity can be achieved and, as shown in Chapter 4, and program implementation success achieved.

Selecting the appropriate level of analysis was shown to be key. Performing the analysis from the perspective of managerial behavior related to program level outcomes, not organizational level challenges, is an important consideration for researchers seeking to utilize or understand this framework. Dissecting and understanding the motivations of managers in charge of the program work is essential for program-level analysis. It has been shown that successful implementation can occur if managerial behavior is understood and modified according to program level catalysts for action. As pointed out in an earlier chapter, the managerial behavioral assessment model was successfully used in a private-sector health care implementation, and it was on the basis of this prior success that the decision was made to use it for the program implementation in the public-sector receivership. Use of the model and the interventions on management that were employed show promise for use in both the private and public sector as a change management process. Further research involving use of the model is required to establish its overall effectiveness.

Findings Review

Outcomes of the receiver’s policy decision to adopt and implement the chronic care model in the correctional environment and the outcomes of administrative behavior that this research suggests accounts for the program’s performance have been modeled at the program level of analysis. Three separate organizations were acknowledged as responsible for the presence and administrative behavior of the actors who constituted the program. In-depth institutional knowledge of these organizations played an important role in understanding how the program itself would have to be constructed for successful implementation and to become institutionalized. The policy maker (receiver) and oversight body (the state legislature’s Finance Committee) set forth the goals and expectations to improve the quality of care delivered to the inmate-patient population while not increasing costs. Program-level outcome data suggested a strong association between planned health care delivery improvements and the workings of the model as adopted and implemented for this environment. Inpatient utilization was shown to be reduced by use of the model as the delivery mode of care. Quality-of-care improvements can be deduced from the analysis of program outcomes because the length of inpatient stays was reduced as a result of effective program implementation.

The discussion in Chapter 3 developed the analytical framework for understanding that, when combined with proper attention to program development, bringing management closer to the work leads to program level success (here, improvement to patient outcomes). Organizational structure was shown to be complex and required managers to work interactively and collaboratively with administrators of areas that had divergent goals and objectives. It has been is argued that much of the success of the CCM implementation was a function of managerial behavior. At the start of the project, managerial behavior had low compliance with project output delivery. After organizational-development practitioner-intervention techniques were applied, improvements resulted in management’s engagement and confidence in the work under their control. The interventions were designed to capture the time and attention of managers who were found to be deficient in properly engaging with program-level work and program-level staff in their area. Managers were empowered to make resource
changes, most significantly in the area of labor assignment (e.g., hiring and firing consultant staff or reassigning full-time staff to other duties). This was an important characteristic of management because without this empowerment the ability to act to improve performance would not exist. It was theorized that the closer these administrators were brought to the work performed, the better informed they would be, which would result in making managerial decisions that effect change in ways that would lead to positive program performance. Health care outcomes of the CCM program were predicated on a properly implemented program and strong managerial performance. Chapter 4 focused on four research questions that looked at the effect that CCM had on patients with respect to age, outcome variables of length of hospital stay, and the number of specialist, inpatient, or emergency room visits. The data showed significant improvement in health outcomes within the hospital setting of care. This was consistent with expectations regarding the possibility for impact in this setting over emergency room care due to the better-triaged control of hospital care.

Overall, some of the findings are positive, suggesting that proper managerial motivation—which can effectively drive managers to be more in touch with their people and the work they are performing in a program environment—can effectively improve program level performance. This translates into organizational performance, both providing evidence for the relevancy of this framework and adding to the organizational behavior literature’s understanding of how managers matter to organizational success.

**Limitations of the Study**

The field of organizational development carries a feature within the practitioner literature that distinguishes it from OD research carried out and presented within the academic literature. This feature is called action research, and, contrary to empirical research, it asserts that things change simply by the fact that they are observed. The act of observation is suggested to embody a characteristic that can change outcomes through mild observational behavior. As such, the results from planned action ought to be continuously examined, and strategies planned for change efforts need to be under continuous revision as interventions take place (McLean, 2009). The structure of the implementation program under study did not allow for continuous improvement and adjustments to intervention efforts due to time and resources constraints. In this, it tended to violate the OD tenet of action research as defined above.

While diabetics chosen as case-group members for this study were identified by their inclusion in the diabetes registry, the system is imperfect in its implementation. There was no known reconciliation process in place to verify whether an inmate-patient in the database still qualified to be included in the registry. Verification processes did exist to ensure that a patient had diabetes (and thus was valid for inclusion in the database). False-positive test results, though, were not adjusted for; this is to say that once presentation for a diabetic event occurred and an inmate was passed for inclusion into the registry, a subsequent review of the patient to ensure correct test results would not occur. Therefore, it is possible that a misdiagnosed individual may have errantly been in the registry and thus also present in the case group of this study. Additionally, if a paroled inmate expired while out of the system, this knowledge was not known for study purposes. This limitation is important, as an assumption of the study is that the CCM program results in higher levels of care, and a death event related to the treatment of this chronic care condition would be considered a lower level of care outcome.
It was theoretically presumed that CCM should have a causal effect upon the use of emergency department services, hospitalizations, and specialist visits and thus have an effect on health care expenditures. As cost data were not readily available in terms of quantifying a particular service performed by a physician or facility, a full analysis of the program’s effect on costs is not performed in this study.

An additional limitation was the small population size available for study, due to the newness of the disease registry. This limited the ability to study additional processes of care and makes generalizing results difficult. Generalization of results is also limited by the unique construction of the environment (see Chapter 2) and the organizational structures involved (see Chapter 3).

Implications for Practice and Future Research

A population often marginalized by the general public, incarcerated members of society are a significant part of public health system. Due to the dynamic nature of the correctional system, inmates tend to contribute to overall public health concerns. Parolees or released inmates return to their communities after spending a period of time within the confines of the correctional system. California’s recidivism rates, which at approximately 63% are among the highest within the United States, propel the cycle of disease between the open and closed populations (California Department of Corrections and Rehabilitation, 2012). Efficacious treatment of the chronically ill within the custodial confines can lead to the decreased exacerbation of the disease outside of prison communities. Additionally, public health costs related to the treatment of the chronically ill within communities can also be abated by the use of the chronic care model.

Considering the aging inmate population, untreated chronic conditions eventually become burdensome to the health care delivery system at large. The newly released from prison constitute a transient population that generally lacks any health care coverage. Parolees with untreated chronic or mental health conditions typically wind up at local emergency departments for treatment. To continue a program such as CCM within institutions will enable proactive management of the inmate-patients with chronic conditions and minimize the disease burden placed on the community over the long run.

In their meta-analysis of planned-organizational-change literature, Robertson and Senevirante (1995) conclude that organizational development activities can be equally or more effective in producing positive change outcomes in public organizations than private companies can. They found that public-sector organizational development interventions seem to be at least equally effective at enhancing both individual development and organizational performance factors surrounding planned change activities. The findings developed in this study support the Robertson and Senevirante conclusions, as the data analyzed from this public-agency implementation showed that organizational performance does in fact improve when OD activities are frequently applied as warranted. It can be therefore concluded that this successful program implementation of CCM provides evidence for the application of a disciplined framework for analysis and method of OD implementation within a public-sector environment. It is of course important to acknowledge that these findings may or may not be generalizable to noncustodial environments or even custodial settings that lack a significant single top-down approach policy maker, as was the case with the receivership. Further research utilizing the framework and tools applied during this study, modified to better capture variables germane to the project environment under consideration, is needed for more validation.
and understanding of general framework applicability. It is hoped that as more program implementations are embarked on which seek to transform enterprises, the applicability of the framework presented herein will able to be put to test and further refined. This will advance best practices concerning methods for producing organizational performance results in settings of planned change.
References


UCLA Center for Mental Health in Schools. (2010). *Arguing about charters vs. “traditional” schools masks the failure of school improvement policy and practice to enhance equity of opportunity* (policy brief). Los Angeles, CA: Center for Mental Health in Schools.


