Abstract

Professions, Organizations, and the Challenges of Change:
A Multi-Method Exploration in the Context of Healthcare Delivery

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Organizations often struggle to implement change or to reconfigure their internal processes and practices to achieve desired performance outcomes. This can be particularly challenging with a professional workforce since many of the organization’s tools of influence may not work as intended due to the attributes of professionals and their work. As a result, the presence of professionals can complicate the change processes in ways that many of our current theories do not capture. My multi-method dissertation explores this by examining how organizations can change and innovate when their workforces are dominated by professionals. I study this in the context of healthcare service delivery.

In the first study, I explore the efficacy of one of the organization’s main tools of influence: financial incentives. I develop a theory of situated professionalism to explore the conditions under which professionals change their activity patterns in response to changes in financial incentives. I find support for two conditions which dampen their incentive responses: when financially-motivated actions carry the potential to cause harm (and thus violate a central professional norm); and when work settings constrain autonomy. The analysis uses a matching methodology with difference-in-differences estimation on a large sample of physicians over nine years.
In my second study, I use ethnographic data to explore how one hospital implemented a set of strategically important, centrally-designed tools and practices in five internal clinics. Although these changes did not affect the technical work of physicians (i.e., treating patients), teams struggled to engage physicians in the change. What emerged from the analyses was that physicians enacted their autonomy very broadly within the organization; it encompassed not only the technical work, but also the processes around the work. As such, these non-technical changes represented surprising infringements to physician autonomy. My analyses also highlight the importance of clinics’ adaptation processes in which they attempted to remove these infringements, while at the same time adapting the new practices to generate value.

I conclude by integrating the two studies to elaborate on the studies’ common themes and to develop a set of policy considerations for organizations managing professionals, particularly in the healthcare context.
Dedication

To Ian for the unending and unwavering support throughout this journey.

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1. Introduction: Overview, Setting, and Methods

In this dissertation, I examine how organizations can change and innovate when their workforces are dominated by professionals, whose goals and interests may not align with those of the organization.

When organizations implement new strategies, it often requires making changes to structures and practices inside the organization (e.g. Barley 1986; Briscoe 2007; Edmondson et al. 2001; Huising 2014; Kellogg 2009). In trying to do so, organizations often struggle to align employees’ interests and actions with the organization’s goals. Gaining this alignment with a professional workforce is particularly challenging for a variety of reasons. First, professionals maintain considerable autonomy and control over their work, even when they work within organizations. Second, their specialized knowledge, coupled with their high power and status, make it difficult for others within the organization to understand, evaluate or direct the professional’s work. Third, their actions are driven by the codes of ethics and norms of conduct of their profession which extend well beyond the bounds of the organization (Abbott 1983; Freidson 2001) and so organizational mandates may be easily overpowered by the culture and traditions of a profession (Kellogg 2009) or by the influence of professional associations (Greenwood et al. 2002). It is this set of characteristics that both define what it means to be a professional (distinguishing them from other occupations) and what makes professionals challenging during times of change. As a result of these characteristics of professionals, many of the organization’s tools of influence (such as incentives,
monitoring or bureaucratic authority) may not work as intended or as they normally would on a non-professional workforce (Alvesson and Kärreman 2004; von Nordenflycht 2010). When organizations try to implement change, the presence of professionals can complicate the process in ways that many of our current theories do not capture.

In this mixed-methods dissertation, I delve deeply into these issues in the context of the healthcare industry. Representing 11% of GDP in Canada and over 17% of GDP in the United States, this sector is critically important to both the economy and our individual wellbeing (Canadian Institute for Health Information 2013a; National Center for Health Statistics 2015). There is increasing pressure on healthcare organizations to change and innovate how they deliver services. This, coupled with its highly professionalized workforce, makes it an ideal setting in which to explore my research question. I do so by combining a large quantitative study of over 10,000 physicians providing over 2,000 different types of medical procedures and services (described in Chapter 2) with an ethnography of organizational change in one hospital (described in Chapters 3 and 4), both of which focus on physicians. This focus is appropriate given the physician’s pivotal role in the delivery of health services; they influence upwards of 80% of healthcare spending (Golden and Sloan 2008). For health organizations trying to implement change, understanding and engaging their physicians is crucial (Milliken 2014).

In this introductory chapter, I will provide an overview of the two studies, the research setting, and the overall methodological approach in this dissertation. In discussing the two studies, I will briefly highlight the theoretical positioning of the research, though the detailed discussion of relevant theory will be in each of the empirical chapters (Chapter 2 and 4).

1.1 Overview of Research Studies

Managing a professional workforce has been likened to the problem of “herding cats” (McCormack et al. 2014; von Nordenflycht 2010). As noted, much of this challenge stems from the characteristics of professionals and their work. The professional’s autonomy, specialized knowledge, power and status can
make it difficult for organizations to change professionals’ behaviors and influence them toward the organization’s goals, particularly in the context of implementing change.

Monitoring, common norms, bureaucratic authority and financial incentives are potential solutions to this goal-alignment problem (Akerlof and Kranton 2005; Eisenhardt 1989; Jensen and Meckling 1976; Mintzberg 1979). But when organizations have professionals in the workforce, achieving this alignment is more complex (e.g. Dukerich et al. 2002; Roberts and Dietrich 1999; Sharma 1997). First, relying on monitoring systems can be problematic with professionals since the professional is considerably more knowledgeable than others outside the profession, the causal relationship between the professional’s effort and output is often ambiguous, and the quality of the output is frequently difficult to discern (Shapiro 2005; Sharma 1997). Second, though norms play an integral role in shaping professional’s behaviors, these professional norms originate outside the firm with the profession itself and may not act to align professionals’ behaviors with the organization’s goals. Third, professionals are often resistant to bureaucratic authority due to their autonomy and independence within the organization as well as their strong ties to their profession as a main source of legitimacy. The resulting challenge for organizations is that their remaining mechanism of influence—financial incentives—may also be rendered ineffective due to the power of the profession and professional norms in shaping the actions of individual professionals.

In the first study of my dissertation, described in Chapter 2, I explore the efficacy of financial incentives as a tool for influencing professionals’ activity patterns. There are also many reasons why financial incentives may not work as intended on professionals. The professions, as institutions external to the organization, have tremendous power in shaping the behavior of individual professionals. Professionals’ behaviors are rooted in the norms of conduct of their profession which often emphasize professionals’ obligations to act in their clients’ interests rather than their own. At least in part, professional norms exist to constrain self-interest and ensure clients receive quality service. But at the same time, these professional norms may limit the individual professional’s responsiveness to financial
incentives which can then make it harder for organizations to use financial incentives on their professional workforce.

An additional complication is that the power of financial incentives may be context-specific. Professionals often work in different types of settings, each of which may have different norms or provide different constraints on professionals’ behaviors (Briscoe 2007; Scott 1965; Suddaby et al. 2009). The characteristics of the setting can, as a result, influence whether professionals are able or willing to respond to changes in financial incentives. Given these complications, under what conditions will professionals change their activity patterns in response to changes in financial incentives?

To answer this question, I develop the theory of situated professionalism and propose that while professionalism—or adherence to the norms and expectations of the profession—will constrain professionals from acting in their own self-interest (rather than the interests of the clients), its power is situated and shaped by the context facing the professionals in their work. I propose that the manner in which context shapes professionalism’s power relates to two core attributes of professionals: the professional norm of putting client’s interests first and not causing the client harm; and the high level of autonomy they have in their work. I test this theory by examining the conditions under which professionals will adjust their behavior in response to changes in financial incentives. The changes in financial incentives provide the professionals the opportunity to better their own financial outcomes, potentially at the expense of their clients’ interests. Based on the above theory, I hypothesize two contingencies under which professionals’ responses to changes in financial incentives will be muted: (1) when financially-motivated tasks carry a higher potential of harming the client (and thus violate a professional norm—the obligation to act in the client’s interests); and (2) in work settings that constrain their professional autonomy. Using a matching methodology with difference-in-differences estimation, I test and find support for the hypotheses on a large sample of fee-for-service physician specialists in the province of Ontario, Canada, over a nine-year period.

The findings of this study suggest that when organizations intend to use tools like financial incentives to drive change, professionals in the workforce require special consideration. I find that
financial incentives can be an effective influence mechanism even for professionals; however, their effectiveness is not universal. Rather, their influence is shaped and constrained by professional norms. While organizational theorists of the professions emphasize these norms as the main driver of professional behavior, I find that they play a more nuanced role. Professionalism is situated; it is enacted in a much more fluid way that depends on the situation and context facing the professional as they go about their day-to-day work. Furthermore, professionals exert agency when deciding when and how they can satisfy their own self-interest while ensuring that their standing as a professional and the quality of the services they provide to clients are not sacrificed.

The study also suggests that organizations with professionals could benefit from recognizing how the power of the professions influences and interacts with their internal governance and incentive structures and from tailoring their control and influence approaches to acknowledge the power of context in shaping professionals’ responses. Managing professionals requires understanding when and how the characteristics of professional work, including both the norms and the contexts in which the work is performed, can shape the efficacy of financial incentives as a mechanism of influence. These findings may also have relevance for organizations managing other types of professionals such as lawyers, accountants and even tenured faculty inside universities.

The second study in my dissertation, described in Chapters 3 and 4, complements this large quantitative study with an in-depth look inside one organization to understand how they attempted to implement change in their highly professionalized workforce. Whereas the first study explored the efficacy of financial incentives as a tool for influencing professionals’ activity patterns, the second study examines other approaches to change. Financial incentives are just one tool available to organizations when trying to implement change and, as I show in the first study, the efficacy of this tool is highly contextual. Furthermore, many organizations may lack the financial resources required to achieve professionals’ alignment through financial means alone. Therefore, it is critical to understand other approaches for making change in professionalized contexts.
Drawing on an ethnography of one hospital’s change implementation across five internal clinics, I explore how change is negotiated and contested within the clinic teams, particularly with respect to the physicians. Physicians often have central positions in the hospital’s most important knowledge and work flows and so understanding how to engage these professionals in change is essential for achieving and sustaining positive change outcomes. Qualitative methods are well suited to this line of inquiry as they allowed me to observe interactions between individuals within the organization, from the frontline all the way to the executive, as they negotiated change. Drawing from the 65 interviews, over 12 months of observations, and archival data, I studied how these interactions shaped the change processes and outcomes.

The discussion of this research study spans two chapters. In Chapter 3, I provide information on the organization I studied, HealthHub Hospital, and the organizational changes they were trying to implement. HealthHub was a large, urban teaching hospital in Canada that provided care across multiple contexts including inpatient units, outpatient clinics, an emergency department, and surgical suites. The impetus for my study was that HealthHub was in the process of implementing a large strategic initiative internally: a Management Improvement and Innovation System (MIIS). The MIIS was based on a similar system developed by a leading healthcare system in the United States. The system comprised a series of tools and practices that were designed to improve performance, to promote problem solving at the frontline of the organization, and ultimately to transform the hospital’s culture.

At the time of my fieldwork, HealthHub was just completing its rollout of the program across its inpatient units and was turning its attention towards the outpatient clinics. While at HealthHub, I conducted preliminary fieldwork to collect data on the previous MIIS implementation in the inpatient units, but my analysis focused on their implementation of the MIIS in their outpatient clinics. This focus was appropriate since it allowed me to see the change process from pre-implementation through to the

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1 HealthHub Hospital is a pseudonym. In order to preserve anonymity of the organizations and people involved, some of the details of the organization and the change have been omitted or have been adjusted in ways that are inconsequential to the findings.
end of the formal implementation period in the clinics and beyond. Although the purpose of my preliminary fieldwork was not to fully analyze the inpatient implementation, in Chapter 3, I draw from my interviews and observations from these areas to highlight some of the benefits and challenges described by my informants who were familiar with the inpatient implementation. The value of the preliminary fieldwork was that it also provided me with detailed data on the templates for the MIIS tools and practices. I use these data from my preliminary fieldwork as a platform from which to analyze the MIIS implementation in the outpatient clinics. The goal of Chapter 3 is to provide contextual information to support the empirical analysis in Chapter 4.

Drawing from the ethnography, Chapter 4 is an inductive empirical study examining HealthHub’s implementation of the MIIS across five outpatient clinics in the hospital. I explored how each of the clinic teams attempted to implement the centrally mandated changes. The implementations were highly contested processes, with each clinic team adapting the tools and practices multiple times over many months. I pay particular attention to the role of physicians in this process since numerous informants had noted during my preliminary fieldwork that physicians often represented a significant barrier when implementing change.

Prior research suggests that professionals will resist change and defend their jurisdictions from attack (Abbott 1988), where these jurisdictions contain the highly specialized, technical tasks over which the professionals have a monopoly (Galperin 2014; Huising 2014; Kellogg 2014). Physicians’ jurisdictions include, for example, diagnosing patients, developing treatment plans and providing the treatments. These tasks represent professionals’ livelihoods and so they fiercely resist change in these areas. However, at HealthHub, none of the changes affected the physician’s technical work—these were small changes to the practices in the clinic, such as adding a 15-minute team meeting to the beginning of the day. Yet many of the physicians did not participate in the change.

What emerged from the analysis was that physician autonomy extended beyond control over technical work into more processual dimensions (such as how to schedule patients, or how to prepare for clinic). It was in these processual dimensions that the jurisdictions of the organization and the profession
overlapped, thus leading to challenges during change. To the extent that HealthHub’s mandated changes targeted these processual dimensions, they represented surprising infringements on the physician’s autonomy and jurisdiction. Whereas scholars are often concerned with management intruding on professional autonomy, my findings indicate the professionals, by enacting autonomy broadly (outside of the technical tasks), may also be intruding on management.

My data indicate that these infringements were a common cause of resistance and physician disengagement. Some clinic teams, however, worked to adapt the MIIS tools and practices over many iterations in an attempt to eliminate the infringements. My analyses revealed that this process of adaption led to one of three possible change trajectories for the clinic teams. In the first trajectory, the process of adaptation led to the removal or neutralization of the infringements, thereby enabling the adoption of the new practice. In the second trajectory, the adaptation process was driven by attempts to make the practice generate value. In this trajectory, the teams were often unable to remove all the infringements; however, because the adapted practices generated value, it was ultimately implemented. In this trajectory, some physicians willingly ceded aspects of their professional autonomy and accepted these infringements due to value they generated. In the final change trajectory, teams were unable to adapt the process in a way that removed the infringements or generated sufficient value and the tools and practices were ultimately abandoned by the clinic team.

Taken together, these two research studies enhance our understanding of how organizations can change and innovate in contexts dominated by professionals. The research highlights that professionals are not like other employees and so require special consideration, particularly in the context of implementing change. Understanding this boundary between professions, professionals and organizations will only become more important as professional work continues its migration into larger, more bureaucratic contexts.

In the next section, I expand on my rationale for studying this research question in the healthcare industry and provide details about the structure of the healthcare system in Canada that are important
context for the chapters that follow. In the healthcare context, understanding how to make change is of central importance.

1.2 Research Setting

This dissertation examines how organizations can change and innovate internally when their workforces are dominated by professionals. I study this in the healthcare context, focusing on the organizations and individuals that are involved in the delivery of healthcare services to patients in Canada.

I chose the healthcare setting for two main reasons. First, as noted, the healthcare industry is central to both our economy and our wellbeing. However, healthcare costs are widely acknowledged to be unsustainable and there is pressure in both Canada and the United States to reconfigure the health systems to achieve better outcomes at lower costs. In Canada, headlines such as, “Health care costs for provinces, territories on unsustainable path,” (The Canadian Press 2013) and “Reports find little improvement in wait times for medical care in Canada,” (Church 2015) frequent the news outlets and highlight the urgent need for reform and change in this sector. Despite this pressure, the healthcare system, and the individuals and organizations within it, are highly resistant to change. Understanding the barriers to change in this context and how to overcome them are therefore critically important.

Second, this is an excellent setting for this line of inquiry since it is a highly professionalized context with numerous categories of professionals working inside different types of organizations. The medical profession is one of the strongest professions and physicians are often cited as prototypical professionals (Freidson 1980). In addition, there are many other types of professionals that provide healthcare services to patients including, for example, nurse practitioners, nurses, and psychologists. The high resistance to change exhibited throughout the healthcare system may stem in part from the presence of these professions, each of which has a stake in maintaining the status quo or at least controlling change processes to minimize their potential disruption. For example, considering the study done by Kellogg (2011) examining hospitals’ attempts to implement a reform limiting surgical residents’ work hours. She found
that the strong professional norms and “iron man culture” created barriers to change that ultimately led to failed implementation at two out of three hospitals she studied.

Both of the studies in this dissertation are set in the Canadian healthcare system. Details on the structure of the system and the different types of funding arrangements are important background for the studies that follow. In Canada, healthcare is a provincial responsibility, rather than a federal one, and so each province administers its own healthcare system according to the five principles of the Canadian Health Act of 1984: public administration, universality, comprehensiveness, accessibility and portability. By complying with these principles, provinces are eligible to receive federal funding transfers to pay for the delivery of healthcare services within their borders. The funding is predominantly generated through taxes. On average, provinces spend approximately 40 percent of their budgets on healthcare (Canadian Institute for Health Information 2013a).

The funding relationships between provinces and healthcare providers, including hospitals and physicians, are complex. At the time of my research, hospitals were primarily funded through global budgets, which meant that each hospital would receive a fixed payment each year from the province. The funding amount received by hospitals was primarily influenced by historical budgets and inflation, though politics could also play a role. Historically, hospital funding was not tied directly to patient volumes or the performance of the hospital. The benefits of funding through global budgets were stability and the ability to manage costs. But, this funding model did little to promote improvement and innovation and could create incentives for hospitals to reduce the amount and quality of services they provided (Sutherland et al. 2012).

Physicians are also funded by the government, though the payment structure differs markedly from that of hospitals. Although physicians often work inside hospitals, in almost all cases they are neither employed by the hospital, nor are they paid by the hospital. Rather, physicians are paid by the government for the healthcare services they provide to patients according to province-level agreements between the physicians’ associations and the provincial governments. In this respect, physicians act almost like independent contractors. In most cases, physicians work under a fee-for-service payment
system where they earn a fee from the government for each medical service they provide; the exact fees are predetermined and laid out in a fee schedule. The individual physicians have no price-setting power and they are not able to charge patients directly for the medically necessary services they provide. The benefit of the fee-for-service system is that it encourages physicians to provide more services, which can help reduce wait times and improve access to care. The downside of this system is that it is very difficult to control costs and it can create incentives for physicians to over-treat patients. More details about physicians’ payment models are provided in Chapter 2, as they are highly relevant for my study of physicians’ responses to changes in their financial incentives. Furthermore, the fact that the physicians are not paid by the hospitals in which they work, bolsters their autonomy and independence which, as described in Chapters 3 and 4, can make it challenging for hospitals to implement change. As one informant from HealthHub noted, they struggled to find the “carrot” to entice physicians to engage.

One of the defining features of Canadian healthcare is that there is universal, publicly funded health insurance for nearly all the residents in the country. When Canadians see a doctor or are admitted to the hospital, they are neither required to pay for the medically necessary services they consume, nor are they required to provide any co-payment. Rather, these expenses are paid by the provincial health insurance programs. For example, in the province of Ontario, the Ontario Health Insurance Program pays for all the medically necessary healthcare services for residents of the province of Ontario. These medically necessary services include predominantly hospital and physician services. Although healthcare services are publicly funded, they are in most cases privately provided by healthcare organizations (such as hospitals) and physicians.

The Canadian healthcare system faces many challenges around access to care and unsustainable, rising costs. Although there is universal insurance, patients often have long wait times to access physicians or receive treatments which can have serious consequences for the patient experience as well as health outcomes. A 2016 report from The Fraser Institute found that long wait times for medical treatment and surgery cost Canadians almost $1.2 billion in 2015, or $1,300 per patient in lost income and productivity (Barua and Ren 2016). But increasing access to care often requires more resources which is
Chapter 1: Introduction: Overview, Setting, and Methods

an untenable proposition given the general fiscal climate in the provinces. In Ontario, for example, “restraint in health spending is now entrenched in Ontario’s fiscal plans,” as the government moves from “a squeeze [on healthcare] to a chokehold” (Grant 2015). The system is stretched and experts acknowledge that the challenges will likely worsen in the future due to the aging population (Canadian Institute for Health Information 2011; Canadian Medical Association 2013). A study by the Canadian Foundation for Healthcare Improvement highlighted this challenge:

“[Healthcare costs] threaten to overwhelm the ability of provinces to fund the breadth of healthcare needs of their residents. The ways in which Canadian provinces fund healthcare is an important issue facing policymakers since ineffective, inefficient and unsafe care is a waste of taxpayers’ money and potentially harms patients.” (Sutherland et al. 2012)

In response to these challenges, healthcare systems across Canada have been trying to use funding mechanisms as levers for driving change. To manage physician costs, many provinces have experimented with alternative approaches to physician payment such as salary, capitation (i.e., paying a fixed fee per rostered patient) or blended models. In addition to implementing new funding models, some provinces have attempted to claw back physician fees. For example, Ontario has recently unilaterally cut physicians’ fees in an attempt to control healthcare expenditures.

At the hospital level, some provinces have experimented with alternative funding structures such as activity based funding where hospitals get paid for the amount and quality of care they provide (Canadian Institute for Health Information 2013b; Sutherland et al. 2012). These types of systems, however, have been slow to be adopted because they demand high quality data that is not available with many existing information systems. Within the current funding structure (i.e., global budgets), some provinces have been reducing hospitals’ funding to both manage costs and encourage hospitals to invest in making improvements to improve their efficiency and effectiveness.

In response to these challenges, governments, hospitals and other healthcare organizations in Canada and around the globe have been experimenting with applying lean management principles in an effort to increase efficiency. These lean management techniques originated with Toyota and form the basis of their legendary Toyota Production System. Although Toyota applied the techniques to
automobile manufacturing, the underlying purpose of lean management is broader. The system is designed to “reconfigure organizational processes to reduce waste and enhance productivity based upon the application of specialist analytical tools and techniques coupled with creating a culture of continuous improvement” (Radnor et al. 2012: 364). Although there have been some success stories of organizations adopting lean management to improve performance (Kenney 2010; Mannon 2014), many healthcare organizations have struggled to realize sustained improvements from this approach. The challenge stems in part from the fact that the implementation of lean management is often a top-down, organizationally driven initiative that requires engagement from physicians and other staff in order to make it successful. Regardless of this difficulty, lean management continues to be applied broadly within healthcare and remains a sought-after tool for healthcare organizations attempting to improve performance in the face of decreasing budgets and mounting pressure for improved access and quality of care.

It is in this context, with mounting pressure for change, that I study how organizations can implement change and innovate when their workforces are dominated by professionals. In this dissertation I examine both of the main healthcare providers: physicians and hospitals. The first study, described in Chapter 2, focuses on physicians, examining the extent to which government funding—and in particular, changes in financial incentives—can be an effective lever for shaping professionals’ activity patterns. In the second study, described in Chapters 3 and 4, I focus on one hospital as it attempted to implement lean management across the entire organization.

1.3 Research Methods

The two studies in my dissertation utilize very different methodological approaches to explore aspects of the same overarching research question: how can organizations change and innovate internally when their workforces are dominated by professionals? In this research program, I use mixed methods to “iterate between that which can be counted and that which cannot in order to generate richer insights about the phenomenon of interest” (Kaplan 2015).
In the first study, I mix quantitative and qualitative analyses within the same study. I develop the theory of situated professionalism and propose two hypotheses which I then test using quantitative methods on a large dataset. At the same time, I interviewed physicians and other stakeholders to develop a better understanding of the setting and the physician experience. This approach allowed me to uncover broad patterns in the data regarding professionals’ responses to changes in financial incentives while at the same time developing a deep understanding of the mechanisms underlying the phenomenon. This approach of combining methods lends validity to the quantitative findings (Kaplan 2015).

The second study was an in-depth, qualitative exploration of one organization as they attempted to implement change. While in the field at HealthHub Hospital, I performed 65 interviews and did over 12 months of observations related to the change implementation. My informants included individuals across all levels of the organization, from the frontline to the executive. This qualitative research approach allowed me to observe the interactions of individuals within the organization as they negotiated the change process. Understanding the factors that affect the change processes and outcomes is not possible without this kind of detailed interaction-level data.

In this dissertation, I attempt to cross the “gulf between qualitative and quantitative research” (Kaplan 2015) by integrating different types of approaches and analyses into the same research program. I view these studies as complementary: by drawing on the strengths of both types of research approaches, I develop a deeper understanding of how organizations with professionals can change and innovate.

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In this introductory chapter, I provided an overview of the dissertation’s two research studies that examine change in professional contexts, discussed my rationale for studying this phenomenon in the healthcare context and described my overarching methodological approach. In Chapter 2, I describe my quantitative study of the efficacy of financial incentives on professionals. In Chapters 3 and 4, I report on the findings of my qualitative field study. And in Chapter 5, I conclude by integrating the two studies to elaborate on the nature of the boundary between professions and organizations and by developing a set of policy implications for organizations managing professionals, particularly in the healthcare context.
2. Situated Professionalism: When do Changes in Financial Incentives Influence Professional Behavior?

2.1 Introduction

Professionals are one of the largest and fastest growing occupational groups (Gorman and Sandefur 2011). The presence of professionals in the workforce is a complicating factor for organizations, particularly when implementing change (e.g., Barley 1986; Edmondson et al. 2001; Huising 2014; Kellogg 2014). The challenge arises, in part, because professionals’ actions are driven by professional norms (which originate outside the organization) and, even when working within organizations, professionals maintain considerable autonomy and control over their work (Freidson 2001; Mintzberg 1979; von Nordenflycht 2010). Their specialized and abstract knowledge, coupled with their high power and status, can make it difficult for others within the organization to understand, evaluate, or direct the professional’s work (Sharma 1997). Lastly, professionals in organizations have to balance multiple competing interests: their clients’, the organization’s, and their own (e.g., Golden et al. 2000; Hayward and Boeker 1998). As a result, it can be very difficult to change professionals’ behaviors and influence them toward the organization’s goals. In fact, the challenge of controlling professionals has been likened to the problem of “herding cats” (McCormack et al. 2014; von Nordenflycht 2010).
Incentives and monitoring are two solutions to this goal-alignment problem long advocated by agency theorists (Eisenhardt 1989; Jensen and Meckling 1976). In the classic application of the theory, the principal (the organization) can use incentives to align the financial interests of the agent (the employee or manager) with their own. The organization can also invest in monitoring to learn about the agent’s activities more directly and reduce the information asymmetry. Akerlof and Kranton (2005) proposed an additional mechanism for aligning goals: firms can create and instill strong norms in their workforce. This investment by the organization pays off to the extent that the norms influence the employees to act in alignment with the organization’s goals and thereby reduces the organization’s reliance on costly influence mechanisms like financial incentives.

However, when the agent is a professional, solving the organization’s agency problem is more complex (Roberts and Dietrich 1999; Sharma 1997). First, monitoring can be problematic with professionals for a variety of reasons: the professional is considerably more knowledgeable than the principal; the link between the professional’s effort and output is unclear; and output cannot be measured consistently (Roberts and Dietrich 1999; Shapiro 2005; Sharma 1997). Second, though norms play an integral role in shaping professionals’ behaviors, these professional norms originate outside the firm with the profession and may not align professionals’ behaviors with the organization’s goals (e.g., Kellogg 2009).

The resulting challenge for organizations is that their remaining mechanism of influence—financial incentives—may be rendered less effective. Since professionalism, defined as adherence to the norms and expectations of the profession, can constrain self-interest, it may also make it more difficult for organizations to use financial incentives to align professionals’ goals with those of the organization. While an organization’s norms would work in cooperation with incentives an organization would provide, professionalism might compete. While theory on professionals emphasizes the centrality of professional norms, empirical studies of professional behavior point to a more complex relationship between professionalism and financial incentives. In health economics, numerous studies show that physicians are responsive to financial incentives and treat their patients differently depending on their compensation.
structure. Furthermore, McGuire (2000) notes that empirical studies of physician behavior tend to have a "disconcerting tendency" to turn up results running counter to expectations. Beyond healthcare settings, literature on professional misconduct also suggests that professionals may act outside their professional norms and ethics in some situations in order to further their own self-interest (Gunz and Gunz 2006). Given these complications, under what conditions will professionals adjust their behaviors in response to changes in financial incentives?

To answer this question, I draw from organization theory on the professions (Abbott 1983; Freidson 2001) to develop the theory of situated professionalism.² I propose that while professionalism will constrain professionals from acting in their own self-interest over the interests of their clients, professionalism’s power is situated and shaped by the context facing professionals in their work. That is, in certain work situations or contexts, the binds of professionalism will weaken to the point where a professional may act in their own self-interest over the interests of their clients. Furthermore, I suggest that the ways in which context shapes professionalism’s power to constrain professionals’ self-interest flow directly from the core attributes of professionals: the strong professional norm of putting the client’s interests first and not causing the client harm; and the high degree of professional autonomy afforded to professionals in their work.

I test this theory by examining the conditions under which professionals will adjust their behavior when faced with changes in financial incentives. These changes in financial incentives provide the professionals with the opportunity to improve their own financial outcomes, potentially at the expense of their clients’ interests; the financial incentives create a wedge between the interests of the professional and their clients. Following from the theory of situated professionalism, I hypothesize two particular contingencies under which professionals’ responses to changes in financial incentives will be muted. In the first hypothesis, based on the strong professional norm of putting the client’s interests first, I propose

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² This term builds on research by Noordegraaf (2007), who uses the term “situated professionalism,” in addition to “pure” or “hybrid” professionalism, to define three different models of what it means to be a professional. I use the term to explain how individual professionals’ behaviors, and their professionalism, are contextual and shaped by the situations they face as they go about their day-to-day work.
that the professional’s responsiveness to changes in financial incentives will be reduced in situations where a financially-motivated action carries a high potential to harm the client. In the second hypothesis I explore the role of professional autonomy. Although professionalism constrains professionals from acting in their self-interest despite their high degree of autonomy, I hypothesize that the power of professionalism will vary with the autonomy that professionals experience. In particular, I suggest that professionals’ responses to changes in financial incentives will be lower in settings where their professional autonomy is constrained.

To test these hypotheses, I examine the effect of financial incentives on a large population of fee-for-service physician specialists in Ontario. In particular, I examine when and how physicians change their activity patterns in response to changes in their fees. The setting is rich with institutional features that enable this type of analysis: (1) these physicians are paid according to a piece-rate system where each medical task they perform has a specific fee code and fee associated with it; (2) every time a physician performs a task, it is captured in a central database; (3) as a publicly funded system managed by the government, individual physicians have no price-setting power; (4) patients are unlikely to change their behavior due to fee changes since patients are largely unaware of the fees and the government pays physicians directly; and (5) the fees change sporadically over time.

The task-level panel dataset contains data on over 2000 physician tasks and captures the aggregate behavior of the entire population of physicians quarterly over 9 years. I overlay the fees the physician receives for each of these tasks and a large set of controls to determine how and when fee changes lead to changes in physicians’ activity patterns (i.e., the number of times they perform each task). I test and find support for the hypotheses using a matching methodology with difference-in-differences estimation. The quantitative analysis is complemented by interviews with physicians and other relevant individuals to gain a deeper understanding of the phenomenon and explore the underlying mechanisms driving the effects.

My findings show that for organizations, professionals in the workforce require special consideration. The power the profession has over the behavior of individual professionals makes it
difficult for the organization to manage its professional workforce and achieve its desired performance outcomes. Yet as predicted by agency theory, financial incentives can be an effective influence mechanism, even for professionals. But their effectiveness is not universal. Rather, their influence is shaped and constrained by professionalism. While the organizational theorists of the professions foreground professionalism as the main driver of professional behavior, I find that it plays a more nuanced role. When facing financial incentives, the power of professionalism is situated and its power is shaped by the context facing the professional as they go about their work.

This research shows that professionalism is enacted in a more fluid way than current theories suggest. Professionalism can be a strategic action. Professionals exert agency when deciding when and how they can satisfy their own self-interest while ensuring that their standing as professionals and the care they provide to clients are not sacrificed. Professionals in organizations are simultaneously embedded in multiple agency relationships, and they balance the opportunities and constraints imposed by these relationships in a dynamic and strategic way.

2.2 Theory and Hypothesis Development

2.2.1 Professionals in Organizations: An Agency Problem?

Agency theory provides solutions to alignment problems within and around organizations, like those that exist between shareholders and CEOs or an organization and its employees (Eisenhardt 1989; Jensen and Meckling 1976; Ross 1973). The ability to solve these alignment issues can have important implications for the organization’s performance. When analyzing interactions, agency theory tools focus on the characteristics of the optimal contract, predominantly taking the viewpoint of the principal. Solving the agency problem requires identifying the details of the contract that would maximize the principal’s performance (subject to the agent’s own maximization problem). Within this paradigm, interactions are often dyadic, where two parties with well-defined preferences play a game that has specified information and decision structures. Under the assumptions of rational and self-interested agents, incentives,
monitoring, and common firm norms can be effective tools for achieving goal alignment and optimal outcomes (Akerlof and Kranton 2005; Eisenhardt 1989; Jensen and Meckling 1976). Yet, while the strict assumptions used in principal-agent models aid in the rigorous modeling of different types of exchange interactions, they depart from reality in many organizations (Kaplan and Henderson 2005; Shapiro 2005). This is especially true when considering a professional workforce (Kesner et al. 1994; Sharma 1997) due to the power that the profession has, as a strong institution external to the organization, to shape professionals’ actions. This raises the question of how organizations can manage professionals and influence them toward the organization’s goals (while maintaining the high quality of service professionals provide to their clients).

For organizations with workforces dominated by professionals, using control and influence mechanisms such as monitoring and financial incentives can be problematic (Coff 1997; von Nordenflycht 2010). Monitoring professionals is difficult because the organization’s managers (who may not be professionals) are often unable to understand and evaluate the professionals’ work due to its complexity and highly specialized knowledge base (Gorman and Sandefur 2011). This, coupled with the need for professional discretion in executing the work and the uncertain relationship between the professionals’ actions and client outcomes (Abbott 1988), renders monitoring professionals ineffective or extremely costly (Dukerich et al. 2002; Sharma 1997).

In the absence of monitoring, organizations may then have to rely on financial incentives to influence professional behavior toward the organization’s goals. But financial incentives can also be difficult to implement because professionals’ actions are deeply rooted in professional norms (Freidson 2001; Sorensen and Sorensen 1974). In contrast to the organizationally derived “common norms” described by Akerlof and Kranton (2005) or the “clan norms” described by Ouchi (1980), these norms do not necessarily align professionals’ actions with organizational goals (Kellogg 2009). Professional norms originate outside the organization and emphasize the professional’s duty to do what is right for the client (Gunz and Gunz 2006). As a result, the organization’s financial incentives and the profession’s norms may offer competing pressures on professionals’ actions.
In many cases, both the organization and its professionals value the provision of high-quality services to clients and so the organization’s interests and the professionals’ interests are not completely incompatible. However, there may be instances where they do diverge. For example, Gorman and Sandefur (2011) describe how skyrocketing costs and the need to provide care to less affluent populations have created strong pressures for medical organizations to increase efficiency and standardize processes, which can clash with professional interests and norms. The interests of the organization and its professionals may also diverge when the organization tries to implement new routines and practices within the organization that require professionals to change the way they do their work (Huising 2014; Kellogg 2009). In these cases of misalignment, organizations may have to rely on influence mechanisms such as financial incentives. To do this, however, requires understanding how professionals trade off the potentially competing interests of the client, the professional and the organization.

2.2.2 When do Changes Financial Incentives Influence Professionals’ Behaviors?

When facing a financial incentive, professionals have a choice: they can maintain the status quo (and keep doing what they would have done anyway for their client), or they can change their prescribed action based on the financial incentive. Since the financial incentives may vary in the degree to which they align with (or contradict) professional norms, making this decision requires weighing their duties as a professional against their desire for financial gain in each situation.

Professionals have the ability to change their behaviors in response to financial incentives for a number of reasons. Professionals enjoy a high level of autonomy and control over their day-to-day activities, largely due to their mastery over a highly specialized and abstract knowledge base. The inability of most laypeople or non-professionals to understand this knowledge creates a significant knowledge-asymmetry between the professional and the client (Sharma 1997). As a result, the client is heavily dependent on the opinion and expertise of the professional. This reliance is exacerbated by the inherent uncertainty in professional work, which regularly requires professionals to use their discretion...
when deciding on the appropriate course of action. Even in professions with comprehensive training and strong norms, it is not always clear what the right course of action is when serving a client. As highlighted by Goodrick and Salancik (1996), the reliance on professional discretion creates room for individual interests. Taken together, these characteristics allow professionals to determine the services they provide with minimal interference and provides them with scope for incentive response.

Although professionals may have the ability to respond to financial incentives, our existing theory on professionals suggests that they will not do so. Most portrayals of professionals emphasize that their actions are guided not by financial considerations, but rather by the logic of professionalism (Freidson 2001). This is one important distinction between professional and non-professional employees. The professionalism logic embodies the code of ethics and norms of conduct that define appropriate behavior and emphasizes the primacy of the professional-client relationship and its obligations (Abbott 1983). These ethical codes and norms exist to ensure that the professional will act in the client’s interest, even in the face of the considerable knowledge and power asymmetries inherent in the professional-client relationship (von Nordenflycht 2010). Professionalism, defined as adherence to the norms and expectations of the profession, therefore, acts as a constraint on financial incentives’ influence over professionals.

One of the most central norms and expectations in the professions is their obligation to put the client’s welfare first. When faced with a financial incentive, professionals will be least willing to act according to their own financial self-interest when doing so has a high potential for harming the client. In these situations, taking financially-motivated actions represents a clear violation of their professional duty. But, when a financially-motivated action carries a low potential to harm the client (or the client’s welfare is not in question), professionals may judge that responding to financial incentives does not violate their duty to their client. For example, a physician may decide to run unnecessary non-invasive testing or choose to see a patient more often than required. Such a response may have a relatively neutral impact on the client, while generating positive financial impact for the professional.
In this way, the power of professionalism to constrain a professional’s incentive response is situated. When a task’s potential to cause harm is high, a financial incentive will be less powerful; the professional will be less willing to change the prescribed course of action due to the financial incentive. In contrast, when tasks have a lower potential to cause harm, the effect of the financial incentives will be larger. Based on the above argument, I generate the following proposition:

Proposition 1: Professionals’ responses to financial incentives will be smaller for tasks that have a higher potential of harming clients than for tasks with a lower potential of harming clients.

A second core attribute of professionals is their right to autonomy in their work. Autonomy ensures that professionals have the space and independence required to draw from their abstract and specialized knowledge, use their discretion, and determine the appropriate course of action for their clients. Yet autonomy also provides professionals with the space and independence to take financially-motivated actions with minimal scrutiny. Therefore, professionals may be more likely to respond to financial incentives when they have higher autonomy.

To explore how autonomy affects professionals’ responses to financial incentives, I exploit the fact that a professional’s autonomy is influenced by the organizational settings in which they work. This notion that the organizational setting could constrain or enable professional autonomy sparked one of the largest streams of research within the organization theory on professions (see Anteby et al. 2015; Gorman and Sandefur 2011). Researchers explored the idea that the migration of professionals from small partnerships (Greenwood and Empson 2003) to larger, more bureaucratic settings would constrain their autonomy, threaten their ability to put the client’s needs first, and ultimately reduce the quality of the services they provide (Engel 1970; Freidson 1984; Hall 1968; Sorensen and Sorensen 1974). In this sense, both society and clients benefited from professionals’ autonomy since it protected them from the more market- or profit-oriented motivations of organizations. Although research since then has shown that settings with a higher degree of bureaucracy are not necessarily detrimental to professionals (e.g., Briscoe 2007), there is also evidence that the characteristics of the setting do shape how professionals perform their work (Dukerich et al. 2002).
Since organizational settings can influence professional autonomy, the effect of financial incentives on professionals may also vary according to the organizational settings in which professionals work. In particular, professionals’ incentive responses may be higher in individual offices or small partnerships, where they have a lot of autonomy, a high degree of control over their workflow and can make their own decisions about which clients to see and what services to provide. In contrast, professionals’ incentive responses may be muted when they work in more bureaucratic settings where their autonomy and independence is partially constrained by routines and processes that govern workflow, or by the presence of professional peers providing oversight.

By contrasting these two types of organizational settings, I generate the following proposition concerning the role of autonomy in shaping professionals’ incentive responses:

*Proposition 2: Professionals’ responses to financial incentives will be smaller for tasks performed in settings with lower autonomy than for tasks performed in settings with higher autonomy (for the same types of tasks).*

### 2.3 Research Setting

#### 2.3.1 Fee-for-Service Physicians in the Ontario Healthcare System

I explore how financial incentives influence professionals’ actions in the context of the health care system in the province of Ontario, Canada. Physicians, as prototypical professionals, possess all the characteristics that can complicate the management of professionals. For example, they are highly autonomous, are guided by very well-established norms deeply rooted in the importance of caring for patients (e.g., Hippocratic Oath, or the physician mantra “first do no harm”), use highly abstract and specialized knowledge regularly in their work, and have strong ties to their peers and professional associations.
What makes physicians particularly well suited as a setting for this research is the fact that many of them work within a fee-for-service payment system.3 This means that each medical service the physician can do has a specific fee code and fee associated with it. For example, a service called a “General Assessment” has the fee code “A003” and generates $77.70 in revenue for the physician each time it is performed. A physician’s revenue is therefore a direct result of the medical services they provide. This type of system provides visibility into physicians’ actions at the task level since every time a physician bills a fee code it is captured in a central database. This comprehensive task-level record of physician activity over time allows me to identify whether and how physicians adjust their activity patterns in response to changes in the fees.

Another attractive feature of this setting is that physicians in Ontario work within a publicly funded healthcare system, meaning that all procedures deemed medically necessary are paid for by the government through the Ontario Health Insurance Plan. Patients do not participate at all in the payment process and are largely unaware of how the system works or what these publicly funded services cost. The list of insured services (with their associated fee codes and fees) is laid out in the Schedule of Benefits, which is controlled by the government. The current Schedule of Benefits is over 850 pages long and comprises more than 5,000 different fee codes covering all medical specialties and types of services provided by physicians.

Within this system, individual physicians have no price-setting power. When they provide a medical service to their patients, they bill the government directly and receive the amount laid out in the Schedule of Benefits. Therefore, physicians are unable to adjust their income levels by making pricing modifications; rather, the only mechanism at their disposal to increase their income is to adjust their pattern of activities. As described by one physician informant:

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3 Although there are multiple payment structures used for physicians in Ontario (e.g., salary and fee-for-service), I focus on fee-for-service as it is used for over 70 percent of physician activities (CIHI). Given that the payment structure has been shown to influence physician behavior, it is important to limit the study to examine changes within one type of structure.
“There are two ways that you can maximize your income. One is by running a mill and the other is by ‘billing to the max,’ as we call it. You make sure that every code you possibly could bill justifiably is included.” (Physician, PH8)

Although the system is publicly funded, the health services are privately provided; physicians act like independent contractors employed by the government. In the language of the principal-agent model, the government acts as the principal, and the physicians are its agents. Even though the physician may perform services in a hospital, they bill and are paid directly by the government. In relation to the hospital, they are independent entities who have been granted privileges to perform medical services within the hospital and to direct the use of hospital resources (such as equipment, space, and staff). As a result, the organizations in which the physician provides services (such as hospitals) act as the work setting, not necessarily the employer. In this context, the challenge of using financial incentives to manage, direct, and influence the physician workforce falls to the government.

When trying to manage the more than 20,000 physicians in the province, the fee schedule is the government’s main mechanisms of control. For example, the government can create incentives for certain behaviors by adding new fee codes (e.g., smoking cessation consultation fee to reflect public health priorities), deleting fee codes, or adjusting fee levels for procedures. Physicians can then choose whether and how to adjust their behaviors in response to these changes to the fee schedule. In the time frame of my study, the vast majority of changes—over 99.5 percent of them—were fee increases.

The government, however, is not able to make changes to the fee schedule in isolation. The fee schedule is the outcome of contract negotiations that take place every four years (2000, 2004, 2008, etc.) between the Ontario government and the Ontario Medical Association (OMA)—the physicians’ professional association. The OMA represents the practicing physicians in the province and one of its main purposes has been to represent the physician population in matters related to remuneration (Sawyer and OMA 1980). Once a deal is agreed to by the government and the OMA, the physician population votes on whether to accept the terms. The negotiation results in a Memorandum of Agreement, which
outlines the principles that will govern the relationship between the government and the physicians during the contract period; all physicians are bound by the terms.

Specifically related to the fees, the contract outlines many of the fee changes that are planned along with the timing of the changes and, in some cases, the broad rationale for the fee adjustment. These fees change periodically over time, which allows for the examination of how the activity patterns of the physicians respond to changes in compensation within the same fee-for-service compensation structure. Furthermore, not all the fees change, and those that do, do not all change at the same time. This allows for the creation of a matched control group of fee codes that do not experience fee changes within the time frame of the analysis. The fee changes, although not fully exogenous, are outside the control of the individual physician. Furthermore, a reliance on independent, externally validated evidence to justify specific fee changes during the negotiation process limits the scope for endogenous price determination. In many workplace settings, especially those with professional actors, it is difficult to get this kind of transparency into both activity and fees.

2.3.2 Physicians’ Responses to Changes in the Fee Schedule

If the logic of professionalism was a physician’s sole source of influence, clinical treatment decisions would not depend on the fees at all (McGuire 2008). But physicians, under the fee-for-service system in particular, are also influenced by a more market-oriented logic that foregrounds the financial consequences of the choices the physicians make. As described by one physician informant:

“The incentive definitely can push people one way or another. That's why you're hoping to go to an honest, moral doctor that is going to give you a proper advice and not think about his wallet.”

(Physician, PH8)
The fee-for-service system\(^4\) reinforces the framing of physicians’ interactions as transactions and provides incentives for overtreatment or manipulations based on the specific fee schedule (see McGuire (2000) for a thorough review).

Numerous empirical studies have shown evidence of this type of manipulation. For example, doctors in fee-for-service practices ordered 50 percent more EKGs and 40 percent more X-rays (the tests perceived to be the most profitable) when compared to doctors who did not profit based on the number of tests ordered (Epstein et al. 1986). Similarly, Nassiri and Rochaix (2006) show that physicians will adjust their consultation intensity or “up code” their services in order to defend their level of income.

Physicians’ responses to fee changes can reflect both “useful agency,” where physicians respond to incentives designed to improve the quality of care provided to patients, and “induced demand,” where the physician’s incentive response benefits the physician financially and pushes the patient to receive services away from what they would choose if they had the knowledge required to decide for themselves (McGuire 2008).

And yet, as described by McGuire (2000: 464), empirical studies of physician behavior have a “disconcerting tendency to turn up results running counter to simple neoclassic models” (e.g., Fuchs 1978; Rice 1983) or show no effect at all (e.g., Hurley and Labelle 1995; Li et al. 2014; Notman et al. 1987). Furthermore, these empirical studies often focus on documenting the effect without necessarily linking it to broader theoretical frameworks. A plausible explanation for the variation in results is that the physician response itself is contingent and the economic models do not adequately account for the institutional details and social contexts under which these professionals do their work (Town et al. 2004).

They fail to adequately account for the fact that physicians’ professionalism is situated.

\(^4\) This is similar to a piece-rate system and has all the benefits and downsides associated with this well-studied remuneration model. The fee-for-service model is designed to increase physician productivity and labor supply by encouraging physicians to provide more services, see more patients, and work more hours. The downside of this model is that it may encourage over-treatment or treatment biases based on the specific fee schedule (Golden and Sloan 2008).
As argued in Proposition 1, a physician’s responsiveness to changes in financial incentives depends on the characteristics of the physician’s tasks, and in particular on the potential for the task to cause harm. For physicians, every interaction with a patient can have life-altering consequences. But there is considerable variation in how likely they are to cause a patient direct harm. Highly invasive procedures—like surgeries—may save lives, but they also carry a high potential to cause harm. As noted by Goodrick and Salancik (1996: 9), “surgery puts patients at risk in and of itself.” Given the potential to harm inherent in performing surgery, physicians will be less likely to adjust their provision of surgeries for financially-motivated reasons. Rather, physicians are more likely to perform the surgeries as indicated by the patient’s condition regardless of their own financial interest.

In contrast, physicians often see patients for non-invasive visits and consultations. While these visits are an integral part of all physicians’ work, they carry less potential to cause direct harm to patients. As a result, physicians are more likely to find room for their own financial interests when organizing how they deliver consultations and visits. For example:

“[In deciding on follow-up care:] ‘Let me see you in six weeks, let me see if it gets any better.’ ‘Okay, that's good. Let’s check in three months,’ or, ‘You know what? It’s going to be fine, you can give me a call if you have a problem.’ That's basically called churning. Unnecessary follow-up visits.” (Physician, PH8)

Therefore, following from Proposition 1 which stated that professionals’ responses to financial incentives will be smaller for tasks that have a higher potential of harming clients than for tasks with a lower potential of harming clients, I generate the following hypothesis:

Hypothesis 1 (H1): Volumes for surgery tasks will be less responsive to fee changes than the volumes for consultations/visits tasks (holding the setting constant).

Here I look only at tasks performed in hospitals to hold the setting constant while comparing the effect of the task’s potential to harm.

In developing Proposition 2, I argued that the organizational setting in which professionals work can influence their incentive response by affecting the autonomy and individual control they have over their work. Physicians work in two main types of settings that vary in the level of autonomy they provide...
physicians: hospitals and physician offices (outside hospitals). In offices outside hospitals, physicians often have a high degree of independence in their work. In roles similar to those of small business owners, physicians are free to change practices. As described by one informant:

“[In the office] we are our own little kings and queens and we run things the way we want. Which is nice. The big difference here is the fact that we can…” (Physician, PH8)

But, when working in hospitals, physicians have less autonomy. Physicians maintain regular contact with physician peers and others as they go about their day-to-day work and there are often routines and rules shaping the physician’s workflow (e.g., clinics are open certain hours; physicians are required to round on patients daily; committees exist to discuss negative patient outcomes). One physician described this:

“We have quality control rounds… the hospital and people outside your division are looking at what’s going on with your patients.” (Physician, PH4)

In a hospital setting, physicians are therefore less able to adjust their activity patterns in response to changes in financial incentives. Following from Proposition 2, which stated that professionals’ responses to financial incentives will be smaller for tasks performed in settings with lower autonomy than for tasks performed in settings with higher autonomy, I generate the following hypothesis:

Hypothesis 2 (H2): Volumes for tasks provided in hospitals will be less responsive to fee changes than the volumes for tasks provided in offices (holding the task constant).

Here I hold the task constant and compare settings. To ensure a meaningful comparison, I restrict this analysis to only consultations and visits since these types of tasks take place in both hospitals and offices.

### 2.4 Data and Empirical Approach

I identify how physicians respond to changes in financial incentives by looking at how the quarterly volumes of each task (i.e., fee code) are affected by a change in the task’s fee. In the primary analysis, I use fee code level data and a matching methodology with difference-in-differences estimation to compare fee code volumes before and after the fee change for both the treatment group (fee codes that experience a fee change greater than three percent) and the control group (fee codes that do not have a fee change and
match the treatment group on key observable characteristics). As a robustness test, I also implement the analysis using a fixed effects panel data approach. The quantitative analyses are complemented by interviews with physicians and other relevant individuals to develop further insight about the underlying mechanisms driving the effects.

2.4.1 Description of Data

My dataset includes information on the quarterly volumes for each fee code billed by all the fee-for-service physicians in Ontario over nine years. This task level dataset captures the aggregate behavior of the physicians, specifically capturing the total number of times each fee code is used over time. Given previous research has suggested that physician characteristics such as specialty, age and gender may influence a physician’s responsiveness to financial incentives, the usage of each fee code is broken down to capture usage by each of approximately ninety different physician types. Each physician type represents a unique combination of physician specialty, age group and gender. Practically this means that, for example, rather than only capturing that fee code A003 was billed 50 times in a particular quarter, the dataset captures that it was billed 20 times by female internal medicine specialists over the age of 50 and it was billed 30 times by male internal medicine specialists under the age of 35. The data on the volumes for all of the fee codes and the physician characteristics come from the proprietary National Physician Database managed by the Canadian Institute for Health Information (CIHI). In this analysis, I consider physician activity to be captured in the aggregate usage, or volume, of each fee code by each physician type, and so do not model the decision process of the individual physician. This approach requires making the plausible assumption that patient demand is not affected by the fees; because patients

---

5 Physician specialties include: Family Medicine, Internal Medicine, Neurology, Psychiatry, Pediatrics, Dermatology, Physical Medicine/Rehabilitation, Anesthesia, General Surgery, Thoracic/Cardiovascular Surgery, Urology, Orthopedic Surgery, Plastic Surgery, Neurosurgery, Ophthalmology, Otolaryngology, and Obstetrics/Gynecology. Age groups include: less than 35 years old; between 35 and 50 years old; more than 50 years old. Genders include: male; female.
do not pay for medical services directly, it is highly unlikely that individual patients know about the fees for procedures or follow changes in these fees over time.\(^6\)

The unit of analysis is the fee code-physician type-quarter and so the dependent variable—volume (log-transformed)—is derived from the total number of services billed each quarter to a particular fee code by physicians with the characteristics of a specific physician type. CIHI provides further information about fee code categories—called “National Grouping System (NGS)” categories—which group the thousands of different fee codes into categories (e.g., consultations and visits, surgeries) and subcategories.

To identify when fee codes experienced fee changes, the magnitude of those changes, and many fee code characteristics, I collected data from three sources: the Schedule of Benefits; the Memorandum of Understanding (the contract between the government and the Ontario Medical Association); and the government’s physician remuneration bulletins (the government’s online notification documents). In addition, by examining the descriptions of the fee codes in the Schedule of Benefits, I determined that many of the consultation and visit fee codes are location-specific. For example, fee code “A606” is used for the exact same repeat consultation in a physician’s office, while fee code “C606” is used for the same repeat consultation if performed in a hospital inpatient setting. As a result, for over 95 percent of fee codes relating to consultations and visits, I have information indicating the setting in which the service was provided: hospitals (inpatient areas, outpatient areas, and emergency departments) or physician offices outside hospitals.

2.4.2 Sample Selection, Control Group, and Descriptive Statistics

The original dataset includes all fee code-physician type combinations, however not all of these data were appropriate for this analysis. Several different categories of services—family physician services,

\(^6\) Patients face close to zero out-of-pocket costs for utilizing medically necessary healthcare services, including physicians, hospitals, clinics, and long-term care homes. Patients are largely unaware of the costs of the medical services they use since the Ontario Health Insurance Plan pays physicians directly. Therefore, any changes in physician activity patterns that coincide with fee changes can be viewed as physicians’ responses to financial incentives as they are unlikely to be driven by patients.

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- 32 -
anesthesiology, surgical assistance, diagnostics and therapeutic services, obstetrics, psychotherapy—are compensated in capitated or other methods that would be unsuitable for this comparative analysis. I also remove fee code-physician type combinations that have an average quarterly service volume of less than three services across the whole province. The resulting dataset includes services provided by medical specialists and surgical specialists that relate to consultations/visits and surgeries. This pre-matching panel dataset contains 187,005 observations and 10,746 unique fee code-physician types.

To generate my treatment group, I look at all the fee codes that experience at least one fee change in the period from 2003-Q3 to 2008-Q1. For each of these fee changes, the sample includes eight quarters of data: four quarters before the change and four quarters after the change (excluding the quarter when the change occurred). If the fee code experienced an additional fee change within this “change window,” then it is dropped from the sample. I maintain the same eight-quarter change window for each fee code to ensure a common basis for comparison. This sample-generating procedure requires making a trade-off: a longer change window provides more observations per fee code but results in fewer fee codes in the sample. One important feature of the final treatment group is that it only contains fee increases greater than three percent. The cutoff of three percent was chosen to ensure the focal fee changes were larger than inflation at the time (which hovered around two percent). The analyses and findings are robust to alternative cutoffs. The fact that the dataset contains only fee increases represents a boundary condition on the results since the analysis does not describe what happens in the event of a fee decrease. But, even in the raw dataset, there were few fee decreases (i.e., less than half a percent of all fee changes). This process yielded an initial treatment group with 3,904 different fee code-physician type combinations derived from 612 unique fee codes (see Table 2.1).
Table 2.1 - Sample Construction and Timing of Fee Changes

*Panel A: Treatment group—Fee codes with fee change > 3% in focal quarter.*

<table>
<thead>
<tr>
<th>Quarter of fee change</th>
<th>Number of Unique Fee Codes</th>
<th>Number of Fee Code-Physician Types</th>
<th>Total Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-matching</td>
<td>Post-matching</td>
<td>Pre-matching</td>
</tr>
<tr>
<td>2003-Q3</td>
<td>223</td>
<td>119</td>
<td>1,823</td>
</tr>
<tr>
<td>2006-Q3</td>
<td>13</td>
<td>10</td>
<td>90</td>
</tr>
<tr>
<td>2007-Q1</td>
<td>13</td>
<td>5</td>
<td>117</td>
</tr>
<tr>
<td>2007-Q4</td>
<td>5</td>
<td>5</td>
<td>14</td>
</tr>
<tr>
<td>2008-Q1</td>
<td>348</td>
<td>272</td>
<td>1,860</td>
</tr>
<tr>
<td>Total</td>
<td>612</td>
<td>411</td>
<td>3,904</td>
</tr>
</tbody>
</table>

*Panel B: Control group—Matched fee codes with no fee change*

<table>
<thead>
<tr>
<th>Quarter of fee change</th>
<th>Number of Unique Fee Codes</th>
<th>Number of Fee Code-Physician Types</th>
<th>Total Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-matching</td>
<td>Post-matching</td>
<td>Pre-matching</td>
</tr>
<tr>
<td>2003-Q3</td>
<td>778</td>
<td>745</td>
<td>2,369</td>
</tr>
<tr>
<td>2006-Q3</td>
<td>10</td>
<td>9</td>
<td>34</td>
</tr>
<tr>
<td>2007-Q1</td>
<td>31</td>
<td>22</td>
<td>117</td>
</tr>
<tr>
<td>2007-Q4</td>
<td>146</td>
<td>142</td>
<td>222</td>
</tr>
<tr>
<td>2008-Q1</td>
<td>921</td>
<td>800</td>
<td>2,964</td>
</tr>
<tr>
<td>Total</td>
<td>1,886</td>
<td>1,718</td>
<td>5,706</td>
</tr>
</tbody>
</table>

For the treatment group (those fee codes that experience a fee change), identifying the effect of the fee change is difficult since we cannot observe what the tasks’ volumes would have been if the fee did not change. This lack of a counterfactual means we cannot be sure that the results are actually driven by the fee change. Including a control group—fee codes that do not experience fee changes—helps ensure that the results are not driven by time trends or other influences unrelated to the fee changes. The control group fee codes are intended to represent what would have happened to the treatment group fee codes if the latter did not experience a fee change. For the control group to fulfill this purpose it must be well matched to the treatment group’s fee code-physician types on as many relevant dimensions as possible (discussed more below) and it must not be affected by a fee change.
I created the control group in two stages. I first isolated all the fee codes in the dataset that matched the time periods (i.e., change windows) from the treatment group and had nine quarters during which they did not experience a fee change. This resulted in a set of 1,886 fee codes (and 5,706 fee code-physician type combinations) from which to generate the matched control sample. In the second step, I selected a matched control group and ensured they were exactly matched to the treatment group on both physician and fee code characteristics.

A typical approach to matching uses propensity scores; this is a parametric procedure used in non-experimental settings where treatment and control observations need to be identified based on matching a large number of observable dimensions. However, a central requirement of propensity score matching is the use of covariates to predict treatment. Because in the physician services setting there is no indication that any of the covariates can predict that a fee code will receive the treatment of a specific fee change, I use a technique that is increasingly being used in economics and strategy research called coarsened exact matching (CEM). This technique does not require that covariates predict the treatment (for examples, see Azoulay et al. 2010; Iacus et al. 2012; Singh and Agrawal 2011). A further advantage of CEM is that the procedure allows for exact matching on some dimensions and coarser on others.

Building on the basic CEM approach, I added an additional constraint that required exact matching on each unique combination of all the matching variables: physician specialty, age group, and gender; the narrowest categorization of the fee code category (for which there are over 50 different sub-categories); the location where the service was delivered; and indicators for whether the fee code represents an “add-on” code (which is only used in conjunction with other codes), or is time-based. The treatment and control observations were also matched on time period. The CEM algorithm assigns weights to each observation to ensure proper balancing between treatment and control groups in the regression analyses.7

7 Using the CEM algorithm, each observation is put into a stratum based on its relevant characteristics used for matching. If there are any strata that contain only treatment observations or only control observations, those observations are thrown out. For strata containing both treatment and control group observations, the treatment group observations are assigned a weight of 1 and the control group observations are assigned a weight reflecting the strata’s composition in order to achieve
The final treatment group comprises 1,982 different fee code-physician type combinations (based on 411 unique fee codes) for a total of 15,856 observations. The final control group comprises 5,130 different fee code-physician type combinations (based on 1,718 unique fee codes) for a total of 41,040 observations. See Table 2.1 for details on the sample composition. The descriptive statistics (shown in Table 2.2) provide evidence that the treatment and control groups are well matched across many observable dimensions, which is important for using difference-in-differences estimation. Once the weights are applied, both samples have identical representation across physician specialties, age groups, genders, fee code categories, and service locations. Although, on average, the treatment group’s fee codes have higher fees and volumes, the difference is not large once the standard deviation of the service volumes is considered; kernel density plots of these variables (shown in Figure 2.1) indicate similar distributions. For both service volumes and fees, the majority of the variation occurs between fee code-physician types and not within. The mean fee change is 18 percent or $43.91 (Canadian) and is right skewed; there are many smaller changes and a few large changes. The fee changes for the control group fee codes are zero by construction. The correlations between variables suggest multi-collinearity is not an issue with these data (shown in Table 2.3). The high correlations between the fee code categories and physician specialties reflect the fact that only surgical specialists are able to do surgeries, while both surgical and medical specialists are able to do consultations and visits. The high correlations between location and fee code categories are due to the fact that detailed location data is only available for fee codes with the category of consultations and visits. Therefore the data appear suitable for a matching methodology with difference-in-differences estimation.
Table 2.2 - Descriptive Statistics for Treatment and Control Groups

<table>
<thead>
<tr>
<th></th>
<th>Matched Control Group</th>
<th>Matched Control Group</th>
<th>Treatment Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unweighted, N = 41,040</td>
<td>Weighted, N = 41,040</td>
<td>N = 15,856</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Physician Specialty</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical specialist</td>
<td>0.13</td>
<td>0.34</td>
<td>0.44</td>
</tr>
<tr>
<td>Surgical specialist</td>
<td>0.87</td>
<td>0.34</td>
<td>0.56</td>
</tr>
<tr>
<td>Age Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 35 years old</td>
<td>0.11</td>
<td>0.32</td>
<td>0.16</td>
</tr>
<tr>
<td>35–50 years old</td>
<td>0.50</td>
<td>0.50</td>
<td>0.45</td>
</tr>
<tr>
<td>&gt; 50 years old</td>
<td>0.38</td>
<td>0.49</td>
<td>0.38</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>0.17</td>
<td>0.37</td>
<td>0.30</td>
</tr>
<tr>
<td>Male</td>
<td>0.83</td>
<td>0.37</td>
<td>0.70</td>
</tr>
<tr>
<td>Fee Code Categories</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consultations/visits</td>
<td>0.20</td>
<td>0.40</td>
<td>0.64</td>
</tr>
<tr>
<td>Surgeries</td>
<td>0.80</td>
<td>0.40</td>
<td>0.36</td>
</tr>
<tr>
<td>Location of Visit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office (outside hospital)</td>
<td>0.09</td>
<td>0.28</td>
<td>0.26</td>
</tr>
<tr>
<td>Hospital</td>
<td>0.11</td>
<td>0.31</td>
<td>0.38</td>
</tr>
<tr>
<td>N/A</td>
<td>0.80</td>
<td>0.40</td>
<td>0.36</td>
</tr>
<tr>
<td>Volume</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume (before fee change)</td>
<td>496.87</td>
<td>4279.15</td>
<td>868.77</td>
</tr>
<tr>
<td>Ln volume (before fee change)</td>
<td>3.14</td>
<td>1.76</td>
<td>3.52</td>
</tr>
<tr>
<td>Fee</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fee (before fee change)</td>
<td>286.18</td>
<td>309.17</td>
<td>154.17</td>
</tr>
<tr>
<td>Percent change in fee (%)</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Dollar change in fee ($)</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Note: This table provides descriptive statistics for the treatment group and the matched control group (both unweighted and weighted). Because the CEM algorithm gives all treatment group observations a weight of one, the weighted and unweighted descriptive statistics for the treatment group are the same. The top panel in the table includes the whole dataset, where N = 15,856 for the treatment group and N = 41,040 for the control group. The variables related to physician categories, age group, gender, fee code categories, and location of consultation/visit are indicator variables representing either characteristics of the physician or characteristics of the fee code. The bottom panel of the table uses only the data from before the fee change to calculate the descriptive statistics for volume and fees (N = 7,928 for the treatment group and N = 20,520 for the control group). Volume is the total number of billings made to a fee code i, by physician type k in quarter t. Fee represents the dollar amount that a physician is compensated by the government for providing one unit of fee code i. Fee change magnitude is shown as both the percent change in fee experienced by the fee code as well as the dollar change in fee.
Figure 2.1 - Kernel Density Plots of Treatment and Control Groups (before fee changes)

*Panel A: Log of Quarterly Volumes (weighted)*

*Panel B: Fees (weighted)*

Note: Panel A shows a weighted kernel density plot of the average quarterly volume for the treatment and control groups before fee changes. Panel B shows a weighted kernel density plot of fee code fees for the treatment and control groups before fee changes. Treatment group density is shown using a solid black line. Control group density is shown using a dashed gray line. The data are weighted using the weights generated by the Coarsened Exact Matching protocol.
Table 2.3 - Correlation Table (N = 56,896; unweighted)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ln Volume (Before)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Fee (Before)</td>
<td>-0.22</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Percent Change in Fee</td>
<td>0.03</td>
<td>0.02</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Treatment</td>
<td>0.23</td>
<td>-0.11</td>
<td>0.53</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. After Fee Change</td>
<td>-0.04</td>
<td>0.02</td>
<td>0.00</td>
<td>0.00</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Treat*After</td>
<td>0.14</td>
<td>-0.04</td>
<td>0.35</td>
<td>0.65</td>
<td>0.4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Physician Specialty: Medical Specialist</td>
<td>0.32</td>
<td>-0.35</td>
<td>0.02</td>
<td>0.34</td>
<td>0.00</td>
<td>0.22</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Age: &lt; 35 years old</td>
<td>-0.09</td>
<td>-0.07</td>
<td>0.02</td>
<td>0.07</td>
<td>0.00</td>
<td>0.04</td>
<td>0.07</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Age: 35–50 years old</td>
<td>0.02</td>
<td>0.05</td>
<td>-0.01</td>
<td>-0.05</td>
<td>0.00</td>
<td>-0.03</td>
<td>-0.05</td>
<td>-0.38</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Gender: Female</td>
<td>0.02</td>
<td>-0.14</td>
<td>0.04</td>
<td>0.14</td>
<td>0.00</td>
<td>0.09</td>
<td>0.19</td>
<td>0.05</td>
<td>0.08</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Fee Code Category: Consultations/Visits</td>
<td>0.39</td>
<td>-0.47</td>
<td>0.02</td>
<td>0.43</td>
<td>0.00</td>
<td>0.28</td>
<td>0.71</td>
<td>0.11</td>
<td>-0.07</td>
<td>0.21</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Location Office</td>
<td>0.38</td>
<td>-0.26</td>
<td>0.00</td>
<td>0.22</td>
<td>0.00</td>
<td>0.14</td>
<td>0.45</td>
<td>0.03</td>
<td>-0.05</td>
<td>0.14</td>
<td>0.58</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>13. Location: Hospital</td>
<td>0.13</td>
<td>-0.34</td>
<td>0.03</td>
<td>0.32</td>
<td>0.00</td>
<td>0.21</td>
<td>0.46</td>
<td>0.11</td>
<td>-0.04</td>
<td>0.13</td>
<td>0.69</td>
<td>-0.19</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: Volume is the total number of billings made to a fee code i, by physician type k in quarter t. Fee represents the dollar amount that a physician is compensated by the government for providing one unit of fee code i. Fee change magnitude is the percent change in fee experienced by the fee code. Treat is an indicator variable which equals one if the observations belongs to the treatment group (i.e., fee codes with fee changes greater than three percent). After Fee Change is an indicator variable which equals one if the observation belongs to the period after the fee change (for both the treatment and control groups. Treat*After is an indicator variable which equals one if the observations belongs the treatment group and occurs after the fee change. The variables related to physician specialties, gender, age group, fee code categories, and location of consultation/visit are indicator variables representing either characteristics of the physician or characteristics of the fee code.
In addition to needing the treatment and control to be well matched on observables, a central assumption of difference-in-differences estimation is that the two groups follow parallel trends. Verifying this is important since identifying the treatment effect requires that the difference between the treatment and control groups would have remained constant in the absence of the treatment. To test for pre-treatment trends, I plot the average volumes (demeaned and weighted) for the treatment and control groups, for the quarters before and after the fee change (Figure 2.2). In addition to testing for trends, these figures based on the raw data provide initial confirmation of the conclusions in the health economics literature that physicians do respond to financial incentives. Figure 2.2, Panel A, which includes the data for the full matched sample, shows that the treatment and control groups are similar prior to the fee change and then there is a shift upward in the volume of the treatment group fee codes after the fee change. In the surgery subsample (Figure 2.2, Panel B), the treatment and control groups have similar pretreatment trends and the fee change appears to have little effect. In the subsample of consultations and visits performed in hospital (Figure 2.2, Panel C), the treatment and control groups have slightly different trends before the fee change and then there is a small shift upwards of the treatment group after the fee change. In the final subsample of consultations and visits in offices outside hospitals (Figure 2.2, Panel D), the two groups have similar pre-treatment trends and then there is a large shift upward of the treatment group volumes after the fee change. Therefore, there does not appear to be evidence of worrisome parallel trends. For example, we do not see evidence of different slopes in the treatment and control groups.

Figure 2.2 also provides evidence that there are no anticipatory effects, which is important since difference-in-differences estimation requires that there are no anticipatory effects or selection into treatment. If there are anticipatory effects, then it could mean that future treatment could predict current outcomes and as a result the coefficients could lose their causal interpretation. To test for this further, I do a robustness test described below to ascertain whether trends or selection may be driving the results.
Figure 2.2 - Plot of Treatment and Control Group Volumes

Quarterly Volumes (weighted, demeaned)

Panel A: Full Sample

Panel B: Surgeries

Panel C: Consultations & Visits in Hospitals

Panel D: Consultations & Visits in Offices

Note: Graph shows the time series plot of the demeaned, weighted, average quarterly volume for the treatment and control groups before and after the fee changes. The data are adjusted for differences in the mean volumes for the different fee code-physician type by subtracting the pre-change average volume. The data are weighted using the weights generated by the Coarsened Exact Matching protocol. The vertical dot-dash line delineates the period before the change from the period after the change. Time period zero represents the quarter the fee code changed fees. Panel A includes the whole dataset. Panel B includes only surgeries (same subsample as Table 2.4, Model 1). Panel C includes consultations and visits performed in hospitals (same subsample as Table 2.4, Model 2). Panel D includes consultations and visits performed in offices outside hospitals (same subsample as Table 2.4, Model 3).
2.4.3 Estimation Strategy

In order to identify the effect of fee changes on physician activity patterns, the primary analysis uses a matching methodology with difference-in-differences estimation. In this framework, the volumes of the treatment group fee codes are compared to the volumes of the control group fee codes. The baseline effects are estimated using the following weighted OLS estimation:

\[
\ln(V_{ikt} + 1) = \beta_1 \text{Treat}_{ik} + \beta_2 \text{Treat}_{ik} * \text{After}_{ikt} + \beta_3 X_{ikt} + \delta_{it} + \varepsilon_{ikt},
\]

where \(\ln(V_{ikt} + 1)\) represents the log-transformed volume of fee code \(i\) (plus 1), provided by physician type \(k\), in quarter \(t\). \(\text{Treat}\) is an indicator that is equal to 1 if the observation is in the treatment group (i.e., received a fee change greater than three percent). \(\text{Treat} * \text{After}\) is an interaction that is equal to 1 if the observation belongs to both the treatment group and the period after the fee change. \(X_{ikt}\) is a vector of control variables including: physician characteristics (indicators for specialty, age group, gender), fee code characteristics (indicators for the location the service is provided, the fine grained fee code classification, indicators for the chapter, section and subsection in which the fee code appears in the fee schedule, whether the fee code is an add-on to a base fee code, and whether the fee code is time-based), and characteristics of the fee change (indicator for the quarter of the fee change). In order to control for the potential effect of time trends, I include time fixed effects (\(\delta_{it}\)), which are a set of dummy variables indicating the quarter relative to the fee change (i.e., four quarters before, three quarters before, etc.). The unobservables, \(\varepsilon_{ikt}\), are assumed to be normal and independent and identically distributed. Robust standard errors are clustered on physician types (of which there are between 50 and 80 depending on the subsample), though the results are robust to other clustering approaches. The regression is weighted using the weights generated through the CEM procedure. The results are also robust to including fee code-physician type fixed effects.

In this specification, \(\beta_1\) captures the differences between the treatment and control groups and the main coefficient of interest, \(\beta_2\), captures the effect of the fee change on the treatment group fee codes. This coefficient, when transformed according to \(e^{\beta_2}\), can be interpreted as the percentage change in
volume as a result of the fee change and so it will be positive and statistically significant if physicians respond to fee increases by increasing their usage of that fee code.

Testing hypotheses 1 and 2 requires a comparison of the effect (i.e., $\beta_2$) across different subsamples in the dataset. This subsamples are defined using variables that indicate the type of service (i.e., consultations and visit or surgery) and the location the service is provided (i.e., hospital or office outside the hospital). To test whether the effects in the two samples were statistically different, I performed additional regressions (not shown) which include all subsamples in the same regression (using indicator variables to identify the sample to which each observation belongs). This approach has the advantage of allowing for a statistical test for equivalence of the coefficients. This regression approach yields similar results as the subsample regressions.

Although the use of a difference-in-differences OLS estimator addresses many identification concerns, we may still be concerned about a few potential sources of endogeneity. First, the assumption that pricing changes are quasi-exogenous to the individual physician may be too strong. If the individual physicians are able to directly influence the fee changes, then we would need to be concerned that we are not correctly measuring the effect of fee changes on physician behavior. But, given the nature of the negotiations between the government and the physicians’ union, experts in the field say that it is at most a very small percent of individual physicians who command power sufficient to shape the OMA’s demands. As a robustness test (not shown), I perform the analyses using only data from the youngest age group of physicians (who are the least likely to have any influence on the union or negotiation) and find similar results.

Second, we may be concerned about time-varying unobserved heterogeneity (e.g., costs). Although I gather much of the relevant information affecting physician response to incentives, I cannot observe the costs of each procedure. This omission could be important since physicians are likely to be motivated by their profit margin as well as their revenue. This concern is in part mitigated by the use of a matched control sample since matched procedures may have similar cost trends to the focal procedure.
Also, given the nature of the negotiations over fees, it is unlikely that shocks to costs and fees would occur at the same point in time.

A limitation of this difference-in-differences analysis is that the matching methodology necessitated narrowing the dataset to only those fee codes that had one fee change within the nine quarter change window and had a suitable control group match. This narrowing of the dataset creates a concern over whether the findings will be representative of the broader phenomenon or if the results will be biased by a sample selection issue. To address this concern, I implement the analysis using a fixed effects panel data approach on the full pre-matching dataset. These data are much more representative of the universe of consultation/visit and surgical fee codes. This robustness analysis, described in more detail below, provides additional support for the findings of the difference-in-differences analysis. An additional benefit of the fixed effects panel data approach is that the larger dataset allows me to break the data into more fine-grained subsamples to test the hypotheses in ways that were not possible in the difference-in-differences analysis.

A final limitation of this analysis is that I cannot make direct claims about whether the physician’s decision was “right” or “wrong” and so cannot ascertain the overall impact on the physicians’ patients. It may be that the increase in the volume of tasks provided by the physician actually has a non-decreasing effect on the quality of patient care, though at the expense of the payer (i.e., the government). At this point with these data, I cannot distinguish between physicians responding to incentives designed to influence their behavior toward desired outcomes (e.g., government priorities) and physicians “gaming” the fee schedule. Yet even without this distinction, this research provides insights into the conditions under which financial incentives, whether purposive or unintended, influence the activity patterns of physicians. Future work could address this distinction by studying the effect of incentives that are clearly implemented to drive certain behaviors compared to those incentives that are unintended. This is an interesting area for a follow-up study since the degree to which an incentive is sanctioned could be an additional dimension influencing professionals’ responses.
2.5 Results

The first hypothesis predicts that physicians will have a smaller incentive response for tasks with a higher potential of causing harm (surgeries) than for tasks with a lower potential of causing harm (consultations and visits). The results (shown in Table 2.4, Models 1 and 2) indicate support for this hypothesis. I find that for consultations and visits (performed in hospitals), a fee change is associated with a 14 percent increase in the volume of the affected fee code compared to the control group (Model 2). This incentive response is larger than the effect for potentially harmful surgeries, which is indistinguishable from zero (Model 1). These results hold when analyzed using an interaction model (not shown). Therefore, I find support for the hypothesis that physicians’ incentive responses will be higher for tasks that carry a lower potential for causing harm (and vice versa).

For the second hypothesis, I compare the response to financial incentives across two settings that vary in the autonomy they provide physicians, holding the task constant. I find support for the hypothesis that a physician’s responsiveness to financial incentives will be attenuated in settings where the physician’s autonomy is constrained. For consultations and visits performed in hospitals where autonomy is lower, a fee change is associated with a 14 percent increase in the volume of the affected fee code (Table 2.4, Model 2). Whereas for consultations and visits in private offices, where autonomy is higher, a fee change is associated with a 55 percent increase in the volume of the affected fee code (Table 2.4, Model 3). These results hold when analyzed using an interaction model (not shown). Note that Table 2.4, Model 2 is used in both the hypotheses. These results provide evidence that physicians’ responsiveness to financial incentives is heavily shaped by their work setting and the autonomy it provides.
Table 2.4 - Impact of Fee Changes on Fee Code Volumes (weighted OLS)

**H1**: Volumes for surgery tasks will be less responsive to fee changes than the volumes for consultations/visits tasks (holding the setting constant).

**H2**: Volumes for tasks provided in hospitals will be less responsive to fee changes than the volumes for tasks provided in offices (holding the task constant).

\[
\ln(V_{ikt} + 1) = \beta_1 \text{Treat}_{ik} + \beta_2 \text{Treat}_{ik} \times \text{After}_{ik} + \beta_3 X_{ikt} + \delta_{it} + \varepsilon_{ikt},
\]

<table>
<thead>
<tr>
<th>Hypothesis Tested</th>
<th>Subsample: Task</th>
<th>Setting</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Treat (Indicator for treatment group)</td>
<td>Hospital</td>
<td>Surgeries</td>
<td>Consults &amp; Visits</td>
<td>Consults &amp; Visits (outside hospitals)</td>
</tr>
<tr>
<td>H1</td>
<td>-0.0335</td>
<td>0.605**</td>
<td>0.500*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.100)</td>
<td>(0.0694)</td>
<td>(0.217)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **Treat*After**   | **0.0151**       | **0.134*** | **0.441** **
| (Indicator for treatment group after fee change) | (0.0230) | (0.0567) | (0.135)    |
| Constant          | 0.0683           | 1.866*  | 8.378**     |
|                   | (0.286)          | (0.815) | (1.125)     |
| Observations      | 38,744           | 10,432  | 7,720      |
| R-squared         | 0.272            | 0.447   | 0.524      |

Note: Each model includes but does not show indicator variables for physician characteristics, fee code characteristics, and time. Physician characteristic controls include indicators for each of the physician sub-specialties, age groups, and genders. Fee code controls include indicators for the location the service is provided, the fine-grained fee code classification, indicators for the chapter, section, and subsection in which the fee code appears in the fee schedule, whether the fee code is an “add-on” to a base fee code, and whether the fee code is time-based. Time controls include indicators for each quarter relative to the quarter of the fee change as well as the particular period the fee changed.

Robust standard errors clustered on physician types shown in parentheses; ** p<0.01, * p<0.05, + p<0.1.

2.5.1 Robustness Checks – Difference-in-Differences Analyses

To check the robustness of the results—and explore concerns about trends in treatment and control group volumes before the fee changes—I examine the relationship between the fee changes and the differences between the treatment and control volumes over time. To do this, I run a regression similar to the above main specification, but I replace the interaction term **Treat*After** with a series of dummy variables representing each quarter (indexed relative to fee change) interacted with the **Treat** indicator. This allows me to examine whether there are any concerning pre-treatment trends (after controlling for observables outlined above in the description of the model).
Figure 2.3 - Pre- and Post-Fee Change Effects on Fee Code Volumes

\[ \ln(V_{ikt} + 1) = \beta_1 \text{Treat}_{ikt} + \beta_2 \text{Treat}_{ikt} \times \text{QuarterIndex}_{ikt} + \beta_3 X_{ikt} + \delta_{it} + \epsilon_{ikt}. \]

Panel A: Full Sample

Panel B: Surgeries

Panel C: Consultations & Visits in Hospitals

Panel D: Consultations & Visits in Offices

Note: These plots are based on the point estimate and standard errors for \( \beta_2 \) in the above regression. Each point on the graph represents the coefficient value on the covariate \( \text{Treat*QuarterIndex} \) and thus describes the relative difference in the volumes between treatment fee codes (that experience a fee change) and control fee codes (that have no fee change) in each quarter (relative to the fee change). The bars represent the 90 percent confidence interval. All values are relative to the base period of four quarters before the fee change. Panel A includes the whole dataset. Panel B includes only surgeries (same subsample as Table 2.4, Model 1). Panel C includes consultations and visits performed in hospitals (same subsample as Table 2.4, Model 2). Panel D includes consultations and visits performed in offices outside hospitals (same subsample as Table 2.4, Model 3).
I present the results in Figure 2.3. In these figures, each point represents the coefficient value on the covariate $Treat^{*} QuarterIndex$ and therefore describes the estimated difference in volumes between the treatment and control group fee codes in that period. The bars surrounding each point represent the 90 percent confidence interval. All values are relative to the period four quarters before the fee change. This analysis supports the findings of the regression results and shows no clear evidence that the results are driven by pre-treatment trends. The pre-treatment points are indistinguishable from zero (with the exception of one period in Panel C). This means that there is no statistically significant difference between the treatment and control group in these periods. After the treatment fee change, the difference between the two groups’ volumes increases in Panels A, C, and D.

2.5.2 Robustness Checks – Fixed Effects Panel Data Analyses

To further explore the robustness of my findings, I test the hypotheses using the full pre-matching panel dataset from 2005-Q2 to 2010-Q1. While difference-in-differences estimation is usually preferable to a panel (as long as the assumptions are met), in this setting it required a significant narrowing of the dataset to focus only on the four quarters before and after the fee change for those codes where a suitable match was available. Estimating the effect of the fee changes using the full panel dataset provides further support for my findings and enables me to look at physicians’ responses across more fee codes over longer periods of time. Furthermore, it allows me to control for unobserved variables that do not vary over time within the group (e.g., patient demand for services) and acknowledges the significant heterogeneity in the size and number of fee changes experienced by fee codes over time. Lastly, the larger dataset uncovers theoretically relevant subsamples in the data—such as sub-locations within hospitals—that were dropped from the difference-in-differences analyses.

---

8 The analysis uses the time period after the 2004 contract negotiation (2005-Q2 to 2010-Q1). Fees were frozen during the negotiation period from 2004-Q1 to 2005-Q1 and then payments were made retroactively according to the agreed upon contract terms. As a result, data from this period are unreliable.
Using the panel dataset, I test hypotheses 1 and 2 using interaction models according to the following OLS fixed effect specification:

\[ \ln(V_{ikt} + 1) = \beta_4 \ln(Fee)_{it} + \beta_5 \ln(Fee)_{it} \ast Z_i + \mu_{ik} + \delta_{ikt} + \epsilon_{ikt}, \]

where \( \ln(V_{ikt} + 1) \) represents the log-transformed volume of fee code \( i \) (plus 1), provided by physician type \( k \), in quarter \( t \). \( \ln(Fee)_{it} \) represents the log-transformed volume of fee code \( i \), in quarter \( t \) and is included independently in the model as well as in interaction terms with the subsample indicators relevant to the specific hypothesis being tested \( Z_i \). \( \mu_{ik} \) includes a full set of fee code-physician type fixed effects which captures all the time-invariant physician and fee code characteristics. The model also includes a set of indicator variables that allow for flexible annual time trends that vary across the unique combinations of the 16 physician specialties and six fee code categories (\( \delta_{ikt} \)). The unobservables, \( \epsilon_{ikt} \), are assumed to be normal and independent and identically distributed. Robust standard errors are clustered on fee code-physician types, though the results are robust to other clustering approaches. In this specification, \( \beta_4 \) reflects the task elasticity of fee code volumes to changes in fee code fees. The coefficient of the interaction term, \( \beta_5 \), represents the difference in elasticity between the subsample included in the interaction term and that of the omitted group (i.e., observations included in the regression, but not in the interaction). These coefficients can be interpreted as the percentage change in volume associated with a one percent increase in the fee. The elasticities will be positive and statistically significant if physicians respond to fee increases by increasing their usage of that fee code.

The unbalanced panel dataset captures fee code volumes from 10,674 unique fee code-physician types for an average of just over 17 quarters each (in the period from 2005-Q2 to 2010-Q1), yielding a total sample size of 185,637 observations. Descriptive statistics for the dataset, shown in Table 2.5, indicate that the log-transformed volumes have considerable variation both within and between fee code-physician types, while there is much less within-variation for the fees. This is true for the overall sample and for the subsamples used for the hypothesis testing: surgeries (in hospitals); consults/visits (in hospitals); and consults/visits (in offices).
Table 2.5 - Descriptive Statistics for Pre-Matching Panel Dataset

<table>
<thead>
<tr>
<th></th>
<th>Total Observations</th>
<th>N</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
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<td>10,674</td>
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<td></td>
</tr>
<tr>
<td>Volume (ln)</td>
<td>Overall</td>
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<td>0.00</td>
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<td></td>
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<tr>
<td></td>
<td>Between</td>
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<tr>
<td></td>
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<td>-3.47</td>
<td>9.24</td>
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</tr>
<tr>
<td>Fee (ln)</td>
<td>Overall</td>
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<td>1.19</td>
<td>2.16</td>
<td>8.57</td>
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<td></td>
</tr>
<tr>
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<td>2.16</td>
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<tr>
<td></td>
<td>Within</td>
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<td>Fee (ln)</td>
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<td>Between</td>
<td>1.09</td>
<td>2.36</td>
<td>8.57</td>
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<tr>
<td></td>
<td>Within</td>
<td>0.06</td>
<td>4.33</td>
<td>5.99</td>
<td></td>
<td></td>
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<tr>
<td><strong>Consults/visits (in hospitals)</strong></td>
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<tr>
<td></td>
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<td>9.69</td>
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<td>Fee (ln)</td>
<td>Overall</td>
<td>3.56</td>
<td>0.67</td>
<td>2.16</td>
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<td>0.68</td>
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<td>5.93</td>
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<tr>
<td></td>
<td>Within</td>
<td>0.11</td>
<td>3.22</td>
<td>4.32</td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Consults/visits (in offices)</strong></td>
<td></td>
<td>25,318</td>
<td>1,573</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Volume (ln)</td>
<td>Overall</td>
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<td>2.95</td>
<td>0.00</td>
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<tr>
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<td>Within</td>
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</tr>
<tr>
<td>Fee (ln)</td>
<td>Overall</td>
<td>4.02</td>
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<td>2.33</td>
<td>5.93</td>
<td></td>
<td></td>
</tr>
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<td>0.06</td>
<td>3.57</td>
<td>4.35</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Note: This table provides descriptive statistics on the log-transformed volumes and log-transformed fees for the full pre-matching panel dataset of fee codes pertaining to surgeries and consultations and visits from 2005-Q2 to 2010-Q1. The descriptive statistics are shown for the full dataset and also broken into the three main subsamples: surgeries (in hospitals); consultations/visits (in hospitals); consultations/visits (in office). The total number of observations is given by N, and the total number of unique fee code-physician types is given by n. Descriptive statistics are generated overall, between and within the unique fee code-physician types. Volume is the total number of billings made to a fee code i, by physician type k in quarter t. Fee represents the dollar amount that a physician is compensated by the government for providing one unit of fee code i.

Examining the 10,674 unique fee code-physician types in the dataset (see Table 2.6) shows that the average fee code experiences 0.73 fee changes over the time period (with a maximum of 6 fee changes) and the magnitude of the average fee change is approximately 13% or $15 CDN. Similar to the difference-in-differences data, the dataset has representation across physician specialties, age groups and genders as well as across fee code categories and locations. The depth of these data enable me to break
down the hospital locations for consults/visits into three sub-locations (outpatient areas, inpatient areas and emergency departments) which vary on the degree to which they constrain physician autonomy and control (described in more detail below).

Table 2.6 - Descriptive Statistics on Unique Fee Code-Physician Types (n=10,674)

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># of quarters</td>
<td>17.39</td>
<td>4.67</td>
<td>1.00</td>
<td>19.00</td>
</tr>
<tr>
<td># of fee changes</td>
<td>0.73</td>
<td>1.01</td>
<td>0.00</td>
<td>6.00</td>
</tr>
<tr>
<td>Magnitude of Fee Change</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fee change (%)</td>
<td>0.13</td>
<td>0.24</td>
<td>-0.06</td>
<td>1.99</td>
</tr>
<tr>
<td>Fee change ($)</td>
<td>15.23</td>
<td>42.90</td>
<td>-25.30</td>
<td>518.70</td>
</tr>
<tr>
<td>Physician Specialty</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical specialist</td>
<td>0.29</td>
<td>0.45</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Surgical specialist</td>
<td>0.71</td>
<td>0.45</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Age Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 35 years old</td>
<td>0.18</td>
<td>0.38</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>35–50 years old</td>
<td>0.44</td>
<td>0.50</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>&gt; 50 years old</td>
<td>0.38</td>
<td>0.49</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Physician Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>0.30</td>
<td>0.46</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Male</td>
<td>0.70</td>
<td>0.46</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Fee Code Categories</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consults/visits</td>
<td>0.38</td>
<td>0.48</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Surgeries</td>
<td>0.62</td>
<td>0.48</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Location of Consult/Visit</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office (outside hospital)</td>
<td>0.15</td>
<td>0.35</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Hospital</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Outpatient area</td>
<td>0.23</td>
<td>0.42</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>- Inpatient area</td>
<td>0.01</td>
<td>0.09</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>- Emergency room</td>
<td>0.19</td>
<td>0.39</td>
<td>0.00</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Note: This table provides descriptive statistics the unique fee code-physician types in the panel dataset: # of quarters represents the total number of quarters the fee code-physician type is in the dataset (from 2005-Q2 to 2010-Q1); # of fee changes is the total number of times the fee code’s fee changed; the magnitude of the fee changes are shown as both the percent change in fee experienced by the fee code as well as the dollar change in fee (CDN). The variables related to physician categories, age group, gender, fee code categories, and location of consults/visits are indicator variables representing either characteristics of the physician or characteristics of the fee code.

The first hypothesis predicts that a physician’s usage of a fee code will be less responsive to fee changes (i.e., less elastic) for tasks with a higher potential of causing harm (surgeries) than for tasks with a lower potential of causing harm (consultations and visits). I test and find support for this hypothesis in Table 2.7, Model 4, since the coefficient on the interaction term is positive and statistically significant. Considering that the task elasticity for surgeries is not statistically different from zero ($\hat{\beta}_4 = 0.0772; p=0.164$), the results indicate that a ten percent increase in fees for consults/visits performed in hospitals is associated with a 3.8 percent increase in volumes ($\hat{\beta}_4 + \hat{\beta}_5 = 0.384; p=0.000$).
Table 2.7 - Impact of Fee Changes on Fee Code Volumes (Fixed Effects OLS)

**H1**: Volumes for surgery tasks will be less responsive to fee changes than the volumes for consultations/visits tasks (holding the setting constant).

**H2**: Volumes for tasks provided in hospitals will be less responsive to fee changes than the volumes for tasks provided in offices (holding the task constant).

\[
\ln(V_{ikt} + 1) = \beta_4 \ln(Fee)_{it} + \beta_5 \ln(Fee)_{it} \times Z_i + \mu_{ik} + \delta_{ikt} + \epsilon_{ikt},
\]

where \(Z_i\) is an indicator variable identifying the type of task or setting in which the service takes place (as indicated in the table).

<table>
<thead>
<tr>
<th>Hypothesis Tested:</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subsample:</strong></td>
<td>Setting(s)</td>
<td>Hospital</td>
<td>Office</td>
</tr>
<tr>
<td></td>
<td>Tasks</td>
<td>Consults/Visits</td>
<td>Consults/Visits</td>
</tr>
<tr>
<td>ln(Fee)</td>
<td>0.0772</td>
<td>0.941**</td>
<td>0.960**</td>
</tr>
<tr>
<td></td>
<td>(0.0554)</td>
<td>(0.254)</td>
<td>(0.255)</td>
</tr>
<tr>
<td>Interactions with (\ln(Fee))</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Task: Consults/Visits</td>
<td>0.307**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0813)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Location: Hospital</td>
<td>-0.478+</td>
<td>0.270</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.254)</td>
<td>(0.327)</td>
<td></td>
</tr>
<tr>
<td>* Location: Hospital Outpatient</td>
<td></td>
<td>-0.427+</td>
<td>0.268</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.255)</td>
<td>(0.268)</td>
</tr>
<tr>
<td>* Location: Hospital Inpatient</td>
<td></td>
<td>-0.881**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.255)</td>
<td></td>
</tr>
<tr>
<td>* Location: Hospital Emergency Room</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.268)</td>
</tr>
<tr>
<td>Constant</td>
<td>2.340**</td>
<td>1.677**</td>
<td>1.571**</td>
</tr>
<tr>
<td></td>
<td>(0.221)</td>
<td>(0.428)</td>
<td>(0.449)</td>
</tr>
<tr>
<td>Observations (N)</td>
<td>160,319</td>
<td>66,831</td>
<td>66,831</td>
</tr>
<tr>
<td>Unique Fee Code-Phys Type (n)</td>
<td>9,101</td>
<td>4,011</td>
<td>4,011</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.023</td>
<td>0.026</td>
<td>0.028</td>
</tr>
</tbody>
</table>

Note: Each model includes fixed effects for the fee code-physician type as well as a set of indicator variables that allow for annual time trends specific to each combination of the 16 physician specialties and six fee code categories. Volume is the total number of billings made to a fee code i, by physician type k in quarter t. Fee represents the dollar amount that a physician is compensated by the government for providing one unit of fee code i. Model 4, which includes surgeries and consults/visits in hospitals, tests H1 by including an interaction term between fee and an indicator for the task of consults/visits; the omitted group is surgeries. Model 5, which includes consults/visits in hospitals and offices, tests H2 by including an interaction term between fee and an indicator for the hospital location; the omitted group is the office location. Model 6 uses the same data and approach as Model 5, but breaks down the hospital locations into 3 sub-locations of the hospital outpatient areas, inpatient areas and the emergency room; the omitted group is the office location. In all models, approximately 90 percent of the variation is explained by the fixed effects.

Robust standard errors clustered on fee code-physician types shown in parentheses; ** p<0.01, * p<0.05, + p<0.1
The second hypothesis predicts that physicians’ responses to fee changes will be smaller in settings that constrain their individual autonomy and control over their work. I test and find support for this hypothesis two ways in the panel dataset. First, similar to the difference-in-differences analysis, I compare the task elasticity for consults/visits provided in offices versus those provided in hospitals (Table 2.7, Model 5). The results indicate that the task elasticity for consults/visits in offices (where a ten percent increase in fees is associated with a 9.4 percent increase in volume) is larger than the task elasticity for the same types of services provided in hospitals since the interaction term is negative and statistically significant ($\hat{\beta}_5 = -0.478; p=0.060$).

In a second approach, I break down the hospital locations into three sub-locations and rank them on the degree to which they constrain the physician’s autonomy and ability to control their own workflow. Hypothesis 1 would predict that, within the hospital, outpatient areas would have the largest task elasticity since physicians in these environments have more autonomy (compared to other areas in the hospital) over how they schedule and treat their patients; this type of setting is most similar to physician offices outside of hospitals. Similarly, hypothesis 1 would predict that physicians’ responses to fee changes would be smallest in the emergency room, where physicians are constrained by which patients arrive at the emergency room as well as ongoing system-wide pressure in Ontario to increase emergency room throughput and decrease wait times. In the third hospital location, inpatient areas, physician autonomy and control are moderately constrained due to the use of standardized work practices, the presence of other physicians and peers, and the fact that hospitals often operate near full capacity.

I test and find support for how these locations influence physicians’ responses to fee changes in Table 2.7, Model 6. The results indicate that the elasticity for consults/visits in outpatient areas is not statistically distinct from the effect in offices ($\hat{\beta}_{5-outpatient} = 0.27; p=0.409$). Furthermore, as predicted, the elasticity in hospital inpatient areas is less than the elasticity in offices ($\hat{\beta}_{5-inpatient} = -0.427; p=0.095$), and the effect is even smaller in hospital emergency rooms ($\hat{\beta}_{5-emergency} = -0.881; p=0.001$). Wald tests of the equivalence of the location interaction terms also confirm that the magnitude of the
effect is larger in outpatient areas than in inpatient areas (F=9.56; p=0.002), and the effect is larger in inpatient areas than in emergency rooms (F=13.74; p=0.000). These analyses provide further support for hypothesis 2 and show the degree of autonomy experienced by physicians can influence the degree to which physicians adjust their activity patterns in response to changes in their fees.

2.6 Discussion

This research emphasizes that when organizations attempt to address agency problems, professionals require special consideration. When organizations have workforces dominated by professionals, relying on traditional mechanisms of influence—such as financial incentives, monitoring, or norms—may prove problematic. The potential misalignment between the organization’s goals and its professionals’ norms complicates the organization’s effective use of financial incentives. Although the organization and its professionals may be aligned on the need to provide high-quality services to clients, there may be instances—like, for example, organizational change—where their interests diverge. In these instances, professionalism may become a barrier.

My results show that, as predicted by agency theory, financial incentives do influence behaviors, even for professionals. But they do not do so universally. Rather, the power of financial incentives on professionals is shaped by the context of professional work, and in particular on whether the task has a high potential of causing harm or if the task is provided in a setting where the professional’s autonomy is constrained. These contingencies link directly to two of the core attributes of professionals.

For organization theorists of the professions, this influence of professionalism is not surprising. But rather than professionalism operating as a uniform, binding constraint on self-interest, I find that its role is more nuanced. Professionalism is situated; its power is contingent and depends on the situations or contexts facing professionals as they go about their day-to-day work. I show that in some situations, broader interests beyond solely those of the client may prevail. For example, while seeing patients too
frequently in order to increase income is unprofessional, physicians may be able to justify the behavior since it does not directly cause the patient harm.

Although at a theoretical level, professionals accept a social contract with society that requires strict adherence to the professionalism, we cannot expect that they will act wholly in their clients’ interests at all times. When facing financial incentives, they are neither solely guided by the potential for financial gain, nor does professionalism render them immune to financial incentives. The professionals in this study find a way to balance the demands of their clients with their own self-interest in a much more strategic way. Where professionals find scope for incentive response relates closely to core attributes of professionalism.

This research contributes not only to our understanding of professional behavior, but also more broadly to our knowledge of how conflicting social structures, or logics (Thornton et al. 2012), can influence thought and action of actors embedded in them. The professionals in this study were embedded at the intersection of multiple competing logics: professionalism (in which actions are guided by norms and concerns over quality of craft) and the market (where interactions are impersonal transactions governed by price). Much of the literature on institutions focuses on their constraining nature. This research provides empirical support—in a large-scale quantitative study—for the idea that conflicting logics can also enable instrumental action at the individual level.

The presence of competing logics provides individuals with options, as they convey differing conceptions of what types of behaviors are appropriate and different frames of reference through which to view their interactions. Individuals can use these logics that are available to them. But, rather than being able to draw any logic freely from the toolkit of logics at any time (e.g., McPherson and Sauder 2013), their use of logics is constrained by the binds of the coexisting logics. Whether conscious or unconscious, these constraints limited the professional’s use of the market logic in their work; they did not act freely in pursuit of their own financial interest. The ability or willingness to use these logics was shaped by the specific situation facing the professional.
Furthermore, by focusing on professionals’ actions, this research foregrounds the oft-neglected individual as an actor in institutional analyses. Understanding how individuals navigate the tension inherent in competing logics is critical since—even within organizations—individuals are the ones making sense of their environments, making decisions, and taking actions. This focus on individuals as instrumental actors complements the usual focus on field- and organization-level phenomenon.

2.6.1 Policy Implications

This research bridges the two starkly different conceptions of physician behavior—originating in the sociology of professions and health economics—to explore the competing portrayals of professionals’ responsiveness to incentives. Given the high variability in health economics’ research findings, policy makers and payers have the difficult task of being unable to unequivocally predict how physicians will respond to changes in their incentives. Even when faced with the simple proposal of increasing a fee code’s fee, it is unclear whether physicians will respond by increasing or decreasing their usage of that fee code. Understanding this is of central importance given that healthcare costs in Canada represent over 10 percent of the GDP and are growing rapidly (Canadian Institute for Health Information 2013a); in the United States, healthcare now represents over 17 percent of GDP. Furthermore, since physicians are thought to influence over 80 percent of healthcare spending (Golden and Sloan 2008), initiatives aimed at controlling expenditures and improving quality should consider drivers of physician behavior.

Given the results presented here, one important cause of the empirical inconsistencies in research on physician incentives may stem from the fact that the studies do not adequately take into consideration the multiple factors that may influence the physician’s ability and willingness to change their behaviors in response to financial incentives. Professional’s lack of response to financial incentives may have little to do with the incentive; rather, it may be that responding to the incentive would be at odds with their professionalism, or that the settings in which they work create constraints on incentive response. For health economists, explicitly incorporating these contextual factors will be important for developing more
complete characterizations of professional action. In the future, interventions using financial incentives on professionals can be improved by accounting for the nuanced role that the characteristics of professional tasks and settings have in shaping physicians’ responses.

2.7 Conclusion

For organizations managing professionals, a takeaway from this research is to design influence mechanisms to target areas with scope for action. Organizations with professionals would benefit from recognizing how the power of the professions influences and interacts with their internal incentive structures and from tailoring their control and influence approaches to acknowledge the power of context in shaping professionals’ responses. Furthermore, professionals may evoke “professionalism” strategically; an important task for organizations is to understand when professionals’ resistance to influence is due to their concerns for client well-being, or due to their pursuit of self-interest. Separating the two is vital to the development and management of a strong professional workforce.
Chapter 2: Situated Professionalism:
When do Changes in Financial Incentives Influence Professional Behavior?
3. Inside HealthHub: An Introduction to the Field Study

3.1 Introduction

To understand how change happens in organizations dominated by professionals, whose goals and interests may not align with those of the organization, I spent over a year observing HealthHub Hospital (a pseudonym) implement a Management Improvement and Innovation System (MIIS) across the hospital. HealthHub was a large, urban teaching hospital in Canada that provided health care services across multiple settings, including inpatient units, surgical suites, an emergency department, and outpatient clinics. The hospital had a strong international reputation and had regularly been at the forefront of medical research and innovation; it had pioneered new surgical techniques, medical devices, and other medical interventions in its history. HealthHub had been recognized for delivering high-quality, safe, and efficient care, as evidenced by the “exemplary standing” awarded by Canadian authorities during accreditation.

HealthHub was an ideal setting in which to study the challenges of change in professionalized contexts for three reasons. First, like most hospitals, HealthHub’s workforce was dominated by professionals. In my analysis, I focused on physicians (rather than nurses or other healthcare providers) since physicians were the dominant profession in healthcare (Freidson 1970) and possessed all the characteristics that can complicate organizational change efforts with professionals: physicians controlled
many of the processes and workflows within HealthHub; physicians were responsible for directing the work of others (e.g., physicians wrote orders that nurses then executed); and physicians were ultimately responsible for the care that patients received. In determining this care, the physicians at HealthHub had a high degree of professional autonomy due to both the organizational structure of the hospital (which insulated physicians from the hospital bureaucracy) and the high power and status that the physicians possessed.

Second, HealthHub was in the process of implementing a new Management Improvement and Innovation System (MIIS) which required making changes to their internal processes and practices which, as noted, were driven by the physicians. HealthHub’s executive team had decided to adopt this new system in response to building pressure from the government to increase efficiency and reduce costs across the organization. The implementation was a strategic priority for the hospital. The MIIS, described in more detail below, was a set of linked tools and practices designed to enable “frontline” staff (i.e., staff who interacted with patients) to solve problems and improve performance. The implementation of the MIIS was an ideal setting for this study because it required hospital staff, including physicians, to use new tools and practices on a regular basis. In trying to understand how change happens in these contexts, the nature of the MIIS changes allowed me to examine, in real time, how the implementation of new tools and practices were negotiated and contested by physicians and other staff.

Third, the participation of HealthHub’s physicians was integral for the implementation of the MIIS. The MIIS practices brought together people within the hospital’s units to identify problems, develop solutions, and ensure the solutions were executed effectively. Given physicians’ central positions in HealthHub’s knowledge and workflows, their participation in these practices was integral to their success. The necessity to involve the physicians in the change was an important element of the research design since it meant that the organization would be actively trying to engage the physicians in the change throughout the process. Preliminary fieldwork indicated that challenges regarding physician engagement were front-of-mind for the group managing the MIIS implementation.
Therefore, the implementation of the MIIS at HealthHub had all the ingredients that can make change hard to implement in professionalized contexts. With respect to other hospitals, HealthHub represents a typical case of change. Yet, at the same time, these types of professionalized contexts represent an extreme environment for organizational change more broadly. The complexity and difficulty of change in this type of environment brings to the forefront change-related phenomena that may remain obscured in more traditional organizational settings.

In order to understand how organizations can implement change in professionalized contexts, I spent over a year inside HealthHub developing a longitudinal dataset that captured how change was negotiated on five outpatient clinics. The five focal outpatient clinics were Head Clinic, Limb Clinic, Body Clinic, Social Clinic, and Complex Clinic (all pseudonyms). Outpatient clinics, described in more detail below, were areas within the hospital where physicians saw patients, usually by appointment, throughout the day. Outpatient clinics differed from inpatient units where patients were admitted and often stayed for multiple days. My focus on the implementation in the outpatient clinics was appropriate since physician engagement was particularly crucial in these areas. The outpatient clinics were often referred to by informants as being “physician led,” meaning that the operations and workflows were dictated by the physicians. In these areas more than others within the hospital, the adoption and sustainability of the new MIIS tools and practices hinged on physician engagement. In addition, studying five clinics within one hospital allowed me to hold constant many of the organizational-level factors that influenced change, while using the between-unit variation to identify the important factors influencing change in professionalized contexts.

My analytical approach was inductive and open ended, driven by a general interest in how organizations make change when their workforces are dominated by professionals. By combining data from observations, interviews and archival data, I was able to observe what was actually happening in the clinics during the implementation and then probe informants about their interpretations of what was going on. With access to people from the “frontline” (i.e., those that interact with patients) to the executive, I viewed the process from multiple perspectives: I shadowed clinic staff, observed the clinics as they
piloted the new MIIS tools and practices, observed the managers and performance improvement coaches as they debated the merits and challenges of the program and attended the executive steering committee meetings where broader strategic questions about the MIIS and its implementation were discussed.

I did a total of 65 interviews (of which 46 were recorded and transcribed) (see Table 3.1). The average length of the recorded interviews was one hour. I interviewed frontline staff from all five outpatient clinics, the performance improvement group, quality and the executive. I interviewed people in each clinic across a variety of roles (e.g., physicians, nurses, administrative staff, etc.), and achieved relatively good coverage (as indicated in Table 3.1). In addition to the interviews, I spent over a year observing many activities related to the change implementation: executive steering committee meetings; MIIS training sessions; the weekly progress meetings where the performance improvement manager, outpatient quality leader and outpatient managers would discuss their clinic’s progress (or be held accountable for its lack of progress); and the two main practices of the MIIS – the “Daily Prep Meeting” and the “Team Improvement Huddles.” In addition, I was given access to archival data pertaining to the hospital, the clinics and the previous rollout of the MIIS on the inpatient areas. The details of the MIIS tools and practices and their implementation are discussed in detail below.

Table 3.1 - Summary of Interviews

<table>
<thead>
<tr>
<th></th>
<th>Central Clinic</th>
<th>Head Clinic</th>
<th>Limb Clinic</th>
<th>Body Clinic</th>
<th>Complex Clinic</th>
<th>Social Clinic</th>
<th>In-patient</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Performance Improvement</td>
<td>13</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>13</td>
</tr>
<tr>
<td>Quality Leader</td>
<td>9</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Manager</td>
<td>-</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>*</td>
<td>*</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Physicians</td>
<td>-</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Non-Physician Clinicians</td>
<td>-</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>**</td>
<td>9</td>
</tr>
<tr>
<td>Administrative Staff</td>
<td>-</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>26</strong></td>
<td><strong>6</strong></td>
<td><strong>6</strong></td>
<td><strong>15</strong></td>
<td><strong>3</strong></td>
<td><strong>4</strong></td>
<td><strong>5</strong></td>
<td><strong>65</strong></td>
</tr>
</tbody>
</table>

Note: Body, Complex and Social clinics have the same manager and interviews with this manager are shown under the Body column only to avoid triple-counting (indicated by *). An inpatient non-physician clinician (nurse) moved to an outpatient clinic and was an informant; this nurse is listed under the outpatient clinic to avoid double-counting (indicated by **). “-” indicates role did not exist.
When I started my fieldwork, HealthHub had been implementing the MIIS for approximately two years. They were in the final phase of their rollout across the inpatient units and were turning their attention to the outpatient clinics. In order to understand HealthHub’s experience implementing the MIIS in its outpatient clinics, I needed to understand the hospital’s previous experience with MIIS on its inpatient units. To do so, I did some preliminary fieldwork to develop a better understanding of the MIIS tools and practices and the benefits and challenges HealthHub faced during the inpatient rollout. In this preliminary phase, I participated in the training sessions for the last wave of inpatient units, spoke with inpatient unit staff and managers, interviewed members of the performance improvement team that led the inpatient implementation, and observed MIIS practices taking place on inpatient units. These data on the inpatient experience provided me with a knowledgebase of the MIIS template which then helped anchor my analyses of the MIIS implementation on the outpatient clinics.

In this chapter, I provide an introduction to the Management Improvement and Innovation System and its implementation at HealthHub. I first provide a few pertinent details about HealthHub’s organizational structure and the types of roles that exist within the hospital. I then describe the MIIS program, its origins, its tools and practices, and their purposes. Although the purpose of my preliminary fieldwork was not to fully analyze the inpatient implementation, I draw from my interviews and observations from these areas to highlight some of the benefits and challenges of the MIIS that were identified by informants familiar with the inpatient implementation. I use these data as a platform from which to analyze the implementation in the outpatient clinics. I conclude this chapter by providing some background information on the outpatient clinic environment, noting how it compared to the inpatient environment. The goal of this chapter is to provide contextual information to support the empirical analysis in Chapter 4 of HealthHub’s implementation of the MIIS across its outpatient clinics.
3.2 A Primer on HealthHub

The details of HealthHub’s organizational structure and the types of roles within the hospital are important pieces of contextual information for understanding the MIIS and its implementation. First, HealthHub, like most hospitals in Canada, had a complex organizational structure in which the physicians were separated from the rest of the hospital’s staff in the hospital’s organizational structure. This separation is illustrated in the simplified hospital organization chart shown in Figure 3.1. In essence, there were two hierarchies within the organization that came together at the level of the CEO (represented by the black box in Figure 3.1). The physicians’ hierarchy, denoted by the grey shading in Figure 3.1, followed the highly institutionalized division of labor defined by the physician profession. There was a chief of surgery (who oversaw all the surgeons in the hospital) and the chief of medicine (who oversaw all the medical specialists in the hospital). Under each of these chiefs, the physicians were further divided into “divisions” (e.g., cardiology, orthopedics) within the hospital, each of which had a division chief. The physicians in HealthHub had a high degree of autonomy in carrying out their work and this autonomy was reinforced by their separation from the rest of the hospital hierarchy.

Whereas the physician hierarchy was organized around the physician specialties, the hospital hierarchy (represented by the white boxes in Figure 3.1) was organized around the type of work and the different areas within the hospital. In the context of the MIIS implementation, there were two important vice president (VP) roles in the hospital. The VP of clinical services oversaw the operations of the inpatient units, the emergency department and the surgical suites (which were managed by the director of inpatient and emergency room services) as well as the outpatient clinics (which were managed by the director of outpatient services). Each of these directors had a set of managers who were responsible for one or more units or clinics. As described below and in Chapter 4, these managers played a central role in the implementation of the MIIS in their areas. The second notable VP role was the VP of quality and performance improvement, who had a director of performance improvement and a director of quality reporting as direct reports. These individuals were important for the implementation of MIIS: the
performance improvement director and two managers in that department designed the program and led the implementation, and the quality leaders provided support for the units’ managers during implementation and beyond.

**Figure 3.1 - Simplified Hospital Organization Chart**

Note: This organization chart has been simplified both to protect the anonymity of HealthHub and to highlight the characteristics most salient for the implementation of the MIIS.
Second, the hospital setting is rife with different types of roles and, during my time at HealthHub, it became evident that people used many different terms to refer to different subsets of people within the organization. For example, “frontline staff” was used to refer to individuals who interacted with patients, and “clinical staff” was used to refer to individuals who provided care to patients. These designations were used in addition to the particular role the individual had (e.g., physician, nurse) and the area in which they worked (e.g., emergency department). There were many cross-cutting terms, reflecting the complexity of the organizational structure. To ease the explication of the MIIS implementation and the individuals involved, I provide a taxonomy of the roles at HealthHub in Table 3.2 and outline what their roles entailed. Within the physician hierarchy, shown at the top of Table 3.2, there were physician leaders (chiefs, and in some cases, outpatient clinics had physician directors), physicians, and physician learners (i.e., fellows and residents). As indicated in the two right-most columns in Table 3.2, the physicians were all considered “clinical” “frontline” staff. Within the hospital hierarchy, there were also “clinical” “frontline” staff which I refer to by the role category of non-physician clinicians. This role category included predominantly nurses, nurse practitioners, and allied health providers (e.g., social workers, physiotherapists). There were also students in these disciplines. In addition to the “clinical” staff, there were administrative staff who worked at the “frontline” within the units or clinics (such as flow coordinators, coordinators and clerks). Away from the “frontline,” there were central support staff (such as quality leaders and performance improvement coaches) and the hospital management (including managers, directors, and VPs). Understanding the different types of roles within HealthHub and how they relate to each other in the organizational hierarchy provides important background for understanding the implementation of the MIIS.
### Table 3.2 - Taxonomy of Roles within HealthHub

<table>
<thead>
<tr>
<th>Organizational Hierarchy</th>
<th>Role Category</th>
<th>Role</th>
<th>Role Description</th>
<th>Clinical staff</th>
<th>“Frontline” Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physician Hierarchy</strong></td>
<td>Physician leadership</td>
<td>Division chief</td>
<td>Oversaw the physicians within the division; diagnosed and treated patients</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Director of the outpatient clinic</td>
<td>Oversaw the outpatient clinic from the physician perspective; diagnosed and treated patients</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Physicians</td>
<td>Physicians</td>
<td>Diagnosed and treated patients</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Learners</td>
<td>Fellows / Residents</td>
<td>Diagnosed and treated patients under the supervision of physicians</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Hospital Hierarchy</strong></td>
<td>Non-physician clinicians</td>
<td>Nurses</td>
<td>Provided patient care (according to physicians’ orders)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Charge nurses</td>
<td>Oversaw the clinical work and day-to-day operations on inpatient units; provided patient care (role did not exist in outpatient clinics)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nurse practitioners</td>
<td>Provided patient care (independent of physicians)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Allied health</td>
<td>Provided supplementary patient care (e.g., social workers, dieticians, occupational therapists, physical therapists)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Students</td>
<td>Students (in nursing or allied health)</td>
<td>Provided patient care (under supervision)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Administrative staff</td>
<td>Flow coordinators</td>
<td>Managed the day-to-day operations of the clinic (role did not exist on inpatient units)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clerks/ coordinators</td>
<td>Performed administrative functions within clinic (e.g., booked patients, answered phones, etc.)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Central support staff</td>
<td>Quality leader</td>
<td>Provided quality support to unit/clinic teams (ensured processes were followed, managed quality issues, and helped with quality improvement projects)</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Performance improvement coach</td>
<td>Managed the rollout of the MIIS; supported improvement work across the hospital</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Management</td>
<td>Executives (CEO, VPs, Directors)</td>
<td>Managed the performance of their portfolio</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Managers</td>
<td>Managed their units or clinics with respect to budget, staffing and performance</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
3.3 The Management Improvement and Innovation System (MIIS)

The MIIS was a lean management system that used the principles of lean manufacturing to develop a culture of continuous improvement within the organization. Lean management techniques originated with Toyota and formed the basis of their well-known Toyota Production System (Monden 2011; Womack et al. 2007). Although it originated in the automobile manufacturing industry, lean management had become a popular tool for performance improvement in healthcare organizations (Black and Miller 2008; Graban 2011; Graban and Swartz 2012; Kenney 2010; Wellman et al. 2010).

The overarching goal of lean management was to remove waste from processes such that quality and performance improved over time and people spent more time on value-added work. Within the lean management paradigm, there were eight types of waste that could exist in work processes: defects (if work contained errors), over-production (if you did more than was immediately required), waiting (if there were delays between steps in the process), skills (if you under-utilized peoples’ capabilities), transporting (if there was unnecessary movement of patients or supplies), inventory (if you had too much material on hand), motion (if staff moved around too much to do tasks), and over-processing (if you used more resources than the customer required). Lean management was about learning to identify these wastes and then using problem solving tools and project management approaches to remove them and improve the processes.

Lean management was often implemented through rapid improvement events, or “kaizens.” During these short-term projects, groups of stakeholders came together to solve a pre-determined problem. For example, hospitals could try to solve the problem of long emergency department wait times by bringing together a team that included staff from the emergency department (e.g., physicians, nurses, and clerks), the manager, and representatives from related groups such as the lab, pharmacy, or diagnostic imaging. In this process, teams used lean management tools like “value stream maps” or “fishbone diagrams” to better understand existing processes and identify sources of waste. Once the problems had
been identified, teams then used other tools like the “A3 form” or a “plan-do-study-act approach” to structure their problem solving approach and manage execution.

When I discussed the origin of the MIIS implementation with the director of the performance improvement group (PI3) (who was responsible for leading the implementation), the director said that HealthHub had a positive experience with lean management in the past. Prior to implementing the MIIS, HealthHub, like many hospitals in the region, had participated in a province-wide program that applied lean management principals in order to improve efficiency, reduce waste, and improve patient flow in the hospital. But, the director noted that a challenge with lean management was that they saw positive outcomes from rapid improvement events, but then failed to sustain the improved results over time. This difficulty led them to experiment with other approaches to lean management within the organization:

“It’s really the sustainability of [lean] and the culture of it that hasn’t pervaded itself within the organization. So there are pockets that have done it rather well – calling in consultants and ad hoc help. But there hasn’t been a culture for process improvement or a system to maintain it. So that made us reflect. ‘What should we be doing to better approach this at a more cultural level and at a more systemic level?’” (Director of performance improvement, PI3)

Despite these challenges, the director of performance improvement remained a strong advocate for lean management and emphasized that it had become one of the major tools for innovation and improvement across the organization. The director described lean management as “a structured approach to problem-solving that was all about aligning resources and reducing waste in day-to-day activities.” The director was convinced that waste was “everywhere,” but said that the hard part was getting people to see it. The director emphasized that once people had been working within a system long enough, they stopped being able to see the waste; the performance improvement group’s purpose was to help other staff learn to identify waste in their daily routines.

The director of performance improvement said that teaching people to see waste required challenging people’s underlying assumptions about “value.” The lean management approach had a very specific definition of “value.” To be valuable, an activity must transform the product or service in some way, it must be done right the first time, and the customer (patient/government) must be willing to pay for
the activity. Performance improvement coaches taught staff this definition during training sessions. Although the universal healthcare insurance in Canada meant that patients did not actually pay for anything (except through general taxes), the performance improvement team emphasized the underlying meaning of this statement. For example, they would ask if HealthHub staff thought a patient would pay to have their medication double checked. After soliciting responses, the performance improvement coaches argued that a patient would not pay for this service; rather, they would want their medication done correctly the first time. Their teaching point was that processes needed to be in place such that double-checking was not required.

Based on this set of experiences, the HealthHub executive decided to develop and implement a Management Improvement and Innovation System (MIIS). The MIIS was modelled off of a similar system developed at Lean Hospital System (a pseudonym), a leading health care provider in the United States. The MIIS implementation was initially led by external consultants who connected HealthHub with Lean Hospital and helped them adapt Lean Hospital’s management system to suit HealthHub’s environment.

At the outset of the MIIS implementation, the external consultants took a team of HealthHub staff—including executives, managers, nurses, and members of the performance improvement team—to visit Lean Hospital to see firsthand how their lean management system worked. At that time, Lean Hospital’s system was at the forefront of organizational innovation in healthcare. Rather than focusing only on rapid improvement events, the lean management system at Lean Hospital was a set of tools and practices that made improvement and innovation a part of daily life for everyone in the hospital. In describing how the MIIS differed from other lean management approaches, one of the performance improvement coaches (PII) said that prior to MIIS, “People would only be engaged through [kaizen] events. Consultants come in, they improve and they leave. In between those times, no one is doing anything … [MIIS] is a way of sustaining it.” The performance improvement coach went on to emphasize that the MIIS was not a project, “it’s a way of life.”
3.3.1 MIIS Tools and Practices

HealthHub, with the help of the external consultants, adapted Lean Hospital’s lean management tools and practices to fit with HealthHub’s environment. One of the performance improvement coaches (PI1) said they, “built MIIS from the learnings that we had from [Lean Hospital].” The overarching goal of the MIIS was to develop HealthHub’s people to “solve problems and improve performance” (MIIS Training Materials). In order to achieve this goal, the MIIS was broken down into four domains: (1) daily planning and operations; (2) continuous improvement and innovation; (3) targets and performance measurement; and (4) sustainability. As summarized in Table 3.3, each domain had a series of linked tools and practices that were designed to achieve specific sub-goals.

The purpose of my preliminary fieldwork was to develop a clear understanding of the template for the MIIS tools and practices. Given that HealthHub’s MIIS implementation started in the inpatient units, the tools and practices were designed to fit the characteristics of the inpatient environment; the tools and practices were formalized over the two-year rollout across HealthHub’s inpatient units. Below, I describe the templates for each of the MIIS tools and practices and provide some background information about how these tools and practices were actually implemented on the inpatient units.

3.3.1.1 Daily Planning and Operations

The first domain of the MIIS focused on daily planning and operations. For this domain, HealthHub’s performance improvement team developed a “prep sheet” tool to be used in a new practice called a “daily prep meeting.” The sub-goals of the daily prep meetings, as described in the MIIS training material, were for participants to (1) proactively plan their day, (2) learn about their unit’s operations, and (3) develop themselves and others as leaders within the organization.
### Table 3.3 - Tools and Practices of the MIIS

<table>
<thead>
<tr>
<th>Domain of MIIS</th>
<th>Practices</th>
<th>Tools</th>
<th>Sub-Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily planning and operations</td>
<td>Daily prep meeting</td>
<td>Prep sheet</td>
<td>- Proactively plan the day</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Learn about the unit’s operations</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Develop leaders</td>
</tr>
<tr>
<td>Continuous improvement and innovation</td>
<td>Team improvement huddle</td>
<td>Improvement center</td>
<td>- Surface defects in daily operations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Idea cards</td>
<td>- Communicate improvement opportunities</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Track implementation of changes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Improve clinic performance</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Develop staff</td>
</tr>
<tr>
<td></td>
<td>Plan-Do-Study-Act</td>
<td></td>
<td>- Structure problem solving</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Summarize and communicate work</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Enable process improvement coaching</td>
</tr>
<tr>
<td>Targets and performance measurement</td>
<td>Leadership check-ins</td>
<td>Local leadership team</td>
<td>- Discuss performance trends</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Prioritize improvement projects</td>
</tr>
<tr>
<td></td>
<td>Scorecard</td>
<td></td>
<td>- Understand clinic performance</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Prioritize areas for improvement</td>
</tr>
<tr>
<td></td>
<td>Performance center</td>
<td></td>
<td>- Display performance</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Share progress on projects</td>
</tr>
<tr>
<td>Sustainability</td>
<td>Standard work</td>
<td></td>
<td>- Reduce variation and improve performance</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Help train new staff</td>
</tr>
<tr>
<td></td>
<td>Process audits</td>
<td>Audit cards</td>
<td>- Provide opportunity for staff engagement</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Control review of standard work</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Maintain a stable, reliable, high performance system</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Train eyes to see problems and identify need for improvement</td>
</tr>
</tbody>
</table>
As designed by the performance improvement team, performing the daily prep meeting required the manager and the charge nurse from an inpatient unit to meet for 15 minutes every morning to plan the day. The manager of the unit was the person that was ultimately responsible for the unit’s performance, oversaw the unit’s staff, and managed the budget. The charge nurse was a senior nurse on the unit who had some managerial responsibilities over other nurses and administrative staff within the unit; in essences, the charge nurses managed the day-to-day operations of the clinic. During the daily prep meeting they used the new tool—the prep sheet—to guide the conversation. The prep sheet was a sheet of paper with a list of questions on it. The prep sheet’s questions were broken up into sections, each of which reflected one of HealthHub’s strategic priorities (e.g., providing excellent care, safety, etc.). For example, for the strategic priority area of safety, the question might be, “What are the known or anticipated safety risks on the unit today?” The questions probed issues that were likely to cause problems in the daily operations of the clinic such as staff absences or difficult patients.

During the daily prep meeting, the manager asked the charge nurse the questions listed on the daily prep sheet. The charge nurse answered the questions, highlighting if there was anything of concern. Depending on the charge nurse’s answers, the manager probed further or engaged in problem solving around specific issues. By design, the daily prep meeting provided the manager with the opportunity to develop the thinking and problem-solving skills of the charge nurse. The performance improvement team had developed guidelines about what constituted a “good” daily prep meeting; it included items such as whether the manager asked open-ended questions and whether actions had a clear owner and timeline for resolution.

The daily planning and operations domain also included daily prep meetings at the director and VP levels of the organization. The daily prep meeting and prep sheets followed the same template as described above, but occurred at different cadences. Within each inpatient unit, the daily prep meeting happened daily. One level up in the organization, the manager met weekly with their director and, one level above that, the director met bi-weekly with their vice president. At these higher levels, the prep sheet had the same structure as described above but with different, higher-level questions that focused on...
broader issues and challenges that the participants were facing. The detailed questions that were asked in the units and clinics rolled up into similar, but broader, questions at the higher levels. One performance improvement coach (PI2) explained that the structure of the meetings was designed to enable information to flow upwards through the organization (from the frontline to the executive) while strategic priorities flowed downward (from the executive to the frontline).

### 3.3.1.2 Continuous Improvement and Innovation

The second domain of the MIIS focused on continuous improvement and innovation. For this domain, the performance improvement group developed a new practice called the “team improvement huddle.” The sub-goals of the team improvement huddles were to (1) surface defects in daily operations, (2) communicate improvement opportunities, (3) track the implementation of changes, (4) improve clinic performance, and (5) develop staff members’ capabilities.

The team improvement huddle was a 15-minute meeting that happened two or three times per week and involved the whole unit team (e.g., nurses, administrative staff, physicians, etc.). During this huddle, the team talked about improvement opportunities and tracked the implementation of any changes or improvements that were underway. Individuals within the unit provided the content for these huddles by identifying things in their environment that could be improved. The improvement huddles were led by the manager, quality leader, or other frontline staff member who was comfortable guiding the team’s discussion.

The new team improvement huddle practice involved the use of two new tools: idea cards and the improvement center board. The idea cards were small forms (approximately four inches by eight inches) on which people wrote down their improvement ideas. When filling out a form, an individual wrote their name, the date, the problem they encountered, what they thought caused the problem, a potential solution, and which of the hospital’s strategic priorities it affected. Once this information had been written, the staff member then put the idea card up on the improvement center board with a magnet. This improvement center board was the second new tool to support the team improvement huddle. The improvement center
was a very large whiteboard that was hung on the wall in the unit and acted as the backdrop for the team’s improvement huddles. The design of the improvement center whiteboard was standardized within the hospital. It had many different sections permanently drawn onto it, with each section representing a different stage in the problem-solving process.

The performance of the team improvement huddle was also standardized. Once a problem was captured on an idea card, it was placed in the first section on the improvement center (at the top left of the board); it would remain there until the problem outlined on the idea card had been discussed by the team during an improvement huddle. When the idea card was first discussed, the person who wrote the card and identified the problem was asked to provide a brief outline of the problem, identify the strategic priority it affected, the potential cause, and their preliminary solution. The group then discussed the idea and moved the idea card to the second section on the improvement center board. The second section of the improvement center was a two-by-two matrix where the two dimensions were “magnitude of impact” and “ease of implementation.” After discussing the idea, the team placed the idea card on this two-by-two matrix. The idea card might be considered a “just do it” (if it was easy and had high impact), a “challenge” (if it was hard but had high impact), a “shelve it” (if it was hard and had low impact), or a “wait and see” (if it was easy but had low impact). An idea card remained in this prioritization matrix until the team was ready to actively work on it. When the team began to work on it, the idea card moved to the work-in-progress section and was assigned an idea leader. The focus of the team improvement huddle was to review progress on these active idea cards and ensure that the whole team had opportunities to provide input and feedback on the solutions that were being implemented. Once the idea card was completed and the solution was implemented, it moved to the next section of the improvement board where all completed idea cards were tallied. The final section of the board was for celebrations. Every team improvement huddle ended with a celebration or recognition of a unit team member.

As designed by the performance improvement group, these team improvement huddles were facilitated by the unit’s manager with the quality leader acting as the note-taker to ensure the huddles were performed in an open, safe, and inclusive way. Once the new practice was established, and the unit
team members were comfortable participating in the problem-solving discussion, the manager and quality leader stepped back and had members of the frontline staff (e.g., the charge nurses, nurses, and administrative staff) led the huddles.

As part of this domain, the performance improvement group utilized another practice called the plan-do-study-act (PDSA) practice, which was a common tool in lean management. The sub-goals of the plan-do-study-act practice were to (1) structure problem solving, (2) summarize and communicate work, and (3) enable process improvement coaching. The plan-do-study-act practice was a structured approach to problem solving for medium- to large-sized projects. Performing the plan-do-study-act practice required project leaders to fill out a plan-do-study-act form on which they provided background on the problem, identified the current state, developed a problem statement and goal, performed a root cause analysis, designed the future state, developed an implementation plan, determined the appropriate follow up and developed approaches to measure results. The plan-do-study-act practice was an iterative process where the team developed a plan, executed the plan, studied what the results were and then took action to improve. Teams went through this cycle multiple times until a final solution was implemented. During the cycles, the plan-do-study-act form was regularly updated such that it provided a summary of the work that had been completed. The plan-do-study-act practice was linked to the team improvement huddle since the idea cards that were considered “challenges” (with high difficulty and high impact) became the medium or large-sized projects that used the plan-do-study-act practice.

3.3.1.3 Targets and Performance Management

The third domain of the MIIS focused on targets and performance management. For this domain, the performance improvement team developed a new practice called the “leadership check-in.” The MIIS training material stated that the sub-goals for this practice were to (1) discuss performance trends and (2) prioritize improvement projects. Two new MIIS tools supported this practice. The first tool was a “unit scorecard” that listed performance metrics for the unit. The sub-goals of the scorecard were to (1) understand unit performance, and (2) share progress on projects. The second tool was the “leadership
team” which was an inter-professional group of stakeholders who “owned the performance of the business” (MIIS training documents). There were no sub-goals associated with the leadership team mentioned in the MIIS training.

The new practice—the leadership check-in—was a monthly meeting of the leadership team during which they discussed the scorecard and the projects that were underway. The scorecards had two types of metrics. First, there were “focused metrics,” which represented the metrics the leadership team was actively working on. Second, there were “background metrics,” which were metrics that were important to the unit, but were not actively being worked on at the time. Each of the focused metrics had an owner on the leadership team who could discuss what progress had been made on projects dedicated to improving that metric. Each unit developed their own scorecard and selected metrics that reflected their priorities.

Another tool in this MIIS domain was the performance center. The performance center was a large whiteboard that was hung in a prominent area within the unit or clinic. The team displayed the unit scorecard as well as updates on any large projects that were ongoing. The sub-goals for this tool were to (1) display performance and (2) share progress on projects.

### 3.3.1.4 Sustainability

The fourth and final domain of the MIIS was sustainability. For this domain, the performance improvement team introduced two new practices: “standard work” and “process audits.”

Standard work was a well-established practice in lean management. Standard work was developed once the improvement team had gone through the full problem solving process and had determined what the final process or practice would be. In addition to the practice, the term “standard work” also referred to the document that listed all the different steps that needed to be followed in order to adhere to the new “best practice” process. Standard work was a document that defined the correct way to perform a task. According to the MIIS training materials, the sub-goals of standard work were to (1)
reduce variation and improve performance, (2) help train new staff, and (3) provide an opportunity to engage staff.

HealthHub’s second practice in the domain of sustainability was the “process audit” which used a new tool called an “audit card.” The sub-goals of the process audit were to (1) control the review of standard work, (2) maintain a stable and reliable high performance system, and (3) train eyes to see problems and identify the need for improvement. Once the standard work for a new process had been developed, teams developed audit cards which described what a team member needed to do to formally check if the process was being followed. Once audit cards were developed, the unit team completed process audits, where an “auditor” (who could be anyone on the unit) took an audit card and followed the instructions on the card to check if the standard work was being followed. The unit team created a schedule of process audits, such that new processes were routinely checked for compliance. For example, if the new process was to store wheelchairs in a certain location in the unit, the audit card might say that the auditor had to check the unit’s hallways for wheelchairs that were out of place. If the auditor found that the process was not being followed, they flagged it for follow-up. If the audit showed non-compliance multiple times in a row, it signaled to the unit that they needed to work on training or enforcing the correct process.

3.3.2 MIIS Project Management, Rollout and Training

The MIIS implementation occurred in multiple phases. With the help of the external consultants, HealthHub piloted the MIIS on one inpatient unit after which they began the rollout of the MIIS to all of the inpatient units. They rolled out the program in four-month phases, where each phase had three or four units participating.

The performance improvement group, which led the implementation, was accountable to a MIIS executive steering committee who met bi-monthly to review the status of the implementation and discuss any barriers or challenges that the units were facing. The executive steering committee included directors
and VPs. In these steering committee meetings, the performance improvement group shared a “heat map” that showed whether or not each unit was performing the new practices. These updates came from each unit’s manager self-reporting the current state of the MIIS on their unit. The heat map from one such meeting is shown in Figure 3.2. On these “red, yellow, green” heat maps, a green color (shown as a solid pattern) indicated that the MIIS practice was “on track,” while a yellow color (shown as a diagonal line pattern) indicated that some monitoring was required (i.e., the unit is not doing the practice), and a red color (shown as a brick pattern) indicated that the practice was “at risk.” Managers rarely reported a “red” outcome; rather, practices that were not being done were often assigned an “n/a” instead. During these meetings, a performance improvement coach shared these “heat maps” and discussed any patterns that existed across units. For example, many units struggled to do the larger “plan-do-study-act” improvement projects. In the meeting, they would then problem-solve about how to support the units in performing the new practices.

Figure 3.2 - MIIS Progress Report from Executive Steering Committee Meeting

<table>
<thead>
<tr>
<th>Unit</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Daily Planning and Operations</td>
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<tr>
<td>Manager → Charge Nurse prep sheet: occurs daily</td>
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<td>Director ← Manager prep sheet: occurs weekly</td>
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<td>2. Targets and Performance Measurement</td>
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<tr>
<td>Unit Scorecard is operational and updated monthly</td>
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<td>Unit Leadership Check-ins held monthly</td>
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<tr>
<td>Performance Center displayed project info and performance</td>
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<tr>
<td>PDSA work to date is reported to the Leadership team</td>
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<tr>
<td>3. Continuous Improvement and Innovation</td>
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<tr>
<td>Unit Improvement Huddles occur regularly</td>
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<tr>
<td>At least 4 ‘Just do it’ ideas implemented each month</td>
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<td>At least 1 PDSA completed every 2 months</td>
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<tr>
<td>4. Sustainability</td>
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</tr>
<tr>
<td>Standard Work created for each PDSA as appropriate</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Standard Work reviewed through Audit Card</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

Legend:  
- On track  
- Monitoring required  
- At risk
In addition to measuring units’ compliance with the MIIS on the “heat maps,” the performance improvement group also measured the impact of the MIIS in two ways. First, they planned to survey each unit’s frontline staff before and after the implementation. These voluntary surveys included 12 statements (which are listed in Table 3.4) and respondents indicated their level of agreement with the statement on a five-point scale (from “strongly agree” to “strongly disagree”). Respondents were also asked to indicate their role in the unit (physician, nurse, clerk, manager, etc.). The performance improvement coaches provided each manager with the surveys and the manager was responsible for getting the unit’s frontline staff to fill them out. The performance improvement coaches tabulated results, calculating the percent of respondents who said they either agreed or strongly agreed with the statements. To assess the impact of the MIIS, they compared the percent agreement before and after the implementation.

**Table 3.4 - Survey Questions to Evaluate Impact of the MIIS**

<table>
<thead>
<tr>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) I understand what the organization's goals are for the next year.</td>
</tr>
<tr>
<td>2) There are regularly scheduled meetings on units/departments that focus on the review of unit/department performance metrics.</td>
</tr>
<tr>
<td>3) Department performance measures are openly communicated and displayed.</td>
</tr>
<tr>
<td>4) Senior leaders are aware of frontline issues and challenges (the way things really are around here).</td>
</tr>
<tr>
<td>5) Learning is an important part of our daily work.</td>
</tr>
<tr>
<td>6) Employee and physician suggestions on how to improve hospital performance are actively solicited.</td>
</tr>
<tr>
<td>7) Employees and physicians understand how their area's performance measures impact the whole organization's performance measures.</td>
</tr>
<tr>
<td>8) The organization facilitates regular knowledge/idea sharing forums across units/departments that are related to hospital improvement.</td>
</tr>
<tr>
<td>9) Visual displays of hospital performance data are regularly reviewed and used to drive improvement.</td>
</tr>
<tr>
<td>10) Senior leaders regularly take time to interact with employees at all levels of the organization.</td>
</tr>
<tr>
<td>11) Daily huddles and/or meetings result in task assignments to improve processes and to follow up on assignments.</td>
</tr>
<tr>
<td>12) When changes are made in my unit/department, employees and physicians are involved in the process.</td>
</tr>
</tbody>
</table>
The second way the performance improvement group tracked the impact of the MIIS was by counting the number of improvement “idea cards” that had been implemented. This measure of MIIS performance was routinely shared during the MIIS executive steering committee meetings. When discussing this metric, the performance improvement team shared the total number of idea cards implemented as well as the rate of implementation. An example from one such meeting is shown in Figure 3.3. In the steering committee meeting in which this figure was shared, the discussion centered on the slowing pace of change and whether this was indicative of larger problems with the MIIS.

**Figure 3.3 - MIIS Impact: Number of Idea Cards Implemented**

The performance improvement group’s approach to training was consistent throughout the rollout. The training consisted of four full-day training modules spaced one month apart, where each module focused on a subset of the MIIS tools and practices. The first module provided an overview of the MIIS tools and practices and had teams develop their first iteration of the prep sheet, scorecard, and local leadership team. Teams were left with a list of things to accomplish before their next training session. For
example, they had to begin performing their daily prep meeting, book their leadership check-ins, and finish developing their scorecard. The second module focused on the MIIS domain of continuous improvement and innovation. The training introduced people to the improvement center, the idea cards, plan-do-study-act practices, and how to facilitate their team improvement huddles. Again, teams were left with a list of tasks they had to complete prior to the next training: begin the director-level prep meeting, start doing the team improvement huddles, and continue refining the practices and tools from the first module. The third module was entirely focused on developing the problem-solving skills of the team members, and introduced lean management tools for structured problem-solving (e.g., value stream maps, fishbone diagrams, etc.). After this module, teams started their first larger project that required the use of the plan-do-study-act practice. The final module focused on innovation and sustainability. Teams were introduced to brainstorming tools for innovation and sustainability tools like standard work and audit cards. One of the performance improvement coaches described their approach to training:

“A lot of what we're teaching isn’t brand-new. It's taking things that they have already done in the past or that were done in different areas and industries and putting it into a neat package… At the end of the day, it is about how you can provide the tools to frontline staff such that they can practice lean or think lean every day.” (Performance Improvement Coach, PI1)

While these day-long training sessions were focal points for the teams implementing the MIIS, the performance improvement coaches provided coaching and support in many ways beyond facilitating the training. First, they held weekly “MIIS progress meetings” with the managers and quality leaders where they assessed implementation progress, provided support as required, and ultimately held the managers accountable for meeting the milestones in the implementation. Second, the performance improvement coaches often attended the units’ prep meetings, improvement huddles, and leadership check-ins and provided feedback on how these new practices could be improved.

My preliminary fieldwork provided me with a comprehensive understanding of the template for the MIIS tools and practices and of HealthHub’s approach to training and implementation. During this preliminary phase, I also spoke with individuals who were familiar with the inpatient implementation to better understand their experiences during and after the MIIS implementation which helped me focus my
attention when studying the outpatient implementation. In the next section I provide some background information on the inpatient implementation and note some of the benefits and challenges of the MIIS that my informants identified.

### 3.4 MIIS on the Inpatient Units

As noted, HealthHub began their implementation of the MIIS on the inpatient units. Inpatient units were areas in the hospital where patients stayed overnight and often for many days. Patients in these units were admitted to the unit by physicians and were often quite ill. Each inpatient unit provided health care services that were either tailored to a specific patient group based on their illness (e.g., cardiac care, critical care, and oncology) or more general in nature (e.g., general medicine).

The director of performance improvement explained that the choice to start with the inpatient units was based on the fact that the main sponsors of the MIIS were directors and vice presidents in that area. Some of the inpatient units also had previous experience using lean management approaches and, as a result, HealthHub’s executive team thought that the MIIS could build on some of the gains they had already achieved. It took approximately two years to roll out the MIIS to HealthHub’s inpatient units; the rollout was done in phases with three or four units per phase.

During the MIIS implementation, each unit had an implementation team which was usually led by the unit’s manager and included non-physician clinicians (e.g., nurses) and administrative staff from the unit and was supported by the unit’s quality leader. In most cases, there was also a “physician champion” who acted as the physician representative on the team. These team members attended the training sessions and brought back the MIIS tools and practices to their units.

My preliminary fieldwork highlighted a number of things that informants liked about the MIIS tools and practices as well as some challenges they faced during the implementation. Although I do not have enough data from this preliminary fieldwork phase to perform a thorough analysis of the inpatient

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experience, in the sections that follow, I share some of these benefits and challenges as they helped inform my subsequent analyses of the outpatient implementation.

### 3.4.1 Benefits of the MIIS on the Inpatient Units

My informants described a number of benefits from the MIIS implementation: (1) it empowered the unit’s staff to identify and solve their own problems, (2) it improved the connections between the unit’s staff and the hospital management, (3) it changed the culture of the units, and (4) it led to improvements in the unit’s processes and practices. I provide some details on how my informants talked about these benefits below.

First, my informants suggested that the MIIS had empowered the unit’s staff to identify and solve their own problems. A nurse described the situation on the inpatient units before MIIS was implemented:

> “[Before MIIS] if you wanted to get something done it was a real hassle. You didn't really ever know what resources to use, where to go, or who to contact. So a lot of people just didn't try, right? They were like, ‘Whoa, it’s so hard to get something done and I don't really know how to do it,’ so they just wouldn't. And things would always stay the same. Complain, complain, and complain about something that needs to be changed, but no one ever took it on.” (Nurse, RN5)

But, the nurse said that, by going through the process, they “learned to see” the problems in the work and in the processes within the unit. The nurse said that the MIIS “enabled people to be able to make change and to feel good about making change on the [unit].” A manager from one of the inpatient units explained why the MIIS engaged the frontline staff:

> “When I was a bedside nurse, I would just complain about things: ‘Oh, why is this like this?’ But then it would go nowhere because I wouldn't tell anybody. But [MIIS] has given people a venue to see that I support their ideas and for them to feel more free to say, ‘Oh yeah, this is the problem.’ I feel like they now know that I care if things are a problem, and that I’m okay with them bringing up these issues. We’ve given them the tools to be able to solve the problems themselves. I think that's what has helped to make the change.” (Manager, AD11)

Because the MIIS practices created this “venue” for sharing information and problem solving, one nurse said that staff were more comfortable raising issues and did not feel as though it would be viewed negatively by manager (i.e., that the nurse would not therefore be labelled as a complainer). At the same
time, the MIIS enhanced the problem-solving skills of the unit’s staff. An inpatient manager (AD11) described this transformation: “Actually, I'm really proud of all the work that has been done. The [MIIS] changed them in a way that they can problem-solve for themselves. I think that they do feel empowered to do it.” Furthermore, the manager went on to say that the quality of their solutions improved: “Instead of just problem-solving easier ideas … they’re actually coming up with really innovative solutions. So I think they’re really being advanced in their problem-solving.” Reflecting on the benefits of the MIIS, one of the performance improvement coaches highlighted improved engagement as an MIIS success story:

“[Staff engagement] is one of the metrics that has improved drastically across the [units]. Because before, they did not have a venue to make decisions, or at least they perceived that they didn't have any power to do that. And I think [the MIIS] has really made them realize, ‘Oh, actually I do have a decision. Yes, I do have a chance to say something about things that I need or how we’re going to do things.’” (Performance improvement coach, PI2)

Second, my informants noted that the MIIS created stronger connections between the unit’s staff and the management of the hospital. Prior to the MIIS, managers and executives rarely spent time on the units. Managers often walked through the unit to talk to their employees, but the visits were largely unstructured and unfocused. One manager described how this changed with the adoption of MIIS:

“Before we had [MIIS], I would check in with the units and say, ‘How are you guys doing?’ But looking back, with a question like that, they would only tell me about concerns if they were major. I think [MIIS] has given more of a focus to the things that we actually want to achieve and to our goals. It has built a stronger relationship just in terms of everyone knowing what everyone's goals are. But also, the visits are more purposeful. As opposed to saying, ‘How are things?’ it puts a focus on what we’re really working towards.” (Manager, AD11)

This benefit was also important to the unit’s staff, as one nurse described:

“[Managers are] much more visible now, which is a big change from the past. Now they know everybody and know what people are doing now, which is different. And I think it's positive that they can say to people, ‘Oh you did a really great job on this project,’ or, ‘Thanks for bringing that up,’ or ‘Thanks for your really good input.’ Just being visible is huge. Same with the directors. Before [MIIS] you'd never ever see them, ever! Unless you were in trouble and you were like, ‘Oh, I’m going to run away now.’ It's so much more comfortable now, you know? Like now you see [the director] and you'd be like, ‘Oh, no big deal. He's just here to chat or to ask how things are going or to see what they can do.’ It is a huge change.” (Nurse, RN5)
The stronger connections between the unit staff and management also helped reinforce the unit- and organizational-level goals. For example, a performance improvement coach (PI2) noted that the daily prep meetings, as regular points of interaction, led to “a better understanding between the charge nurse and the manager about what matters… They were looking at their work a little differently to identify things that they might not have really worried about before.” By incorporating discussion of priorities into the MIIS practices (such as prep meetings and team improvement huddles), the unit’s staff understood how their actions influenced organizational outcomes. The performance improvement coach provided an example of this:

“Everybody knew that overtime contributes to [the unit’s budget performance]. But then you think of rented equipment, rented surfaces, medications that were stocked that expired. It’s all paid for by the unit. Those sorts of things were just a part of doing business from the perspective of some frontline staff. But in reality it has a major impact on the month.” (Performance Improvement Coach, PI2)

Third, my informants said that, over time, the MIIS changed the culture on the units. One of the performance improvement coaches (PI2) said they thought the culture change came from reducing staff’s frustration: “they have addressed some issues that have been frustrating staff members for years … It’s like, ‘You’re finally giving me a chance to raise this issue and address it, which is great!’” A nurse described the transformation:

“I think the staff knew that if they brought something to their [charge nurse] now, that things could change. Which was, I think, a huge culture shift. Because if they brought it to them before, [the charge nurse] didn’t really have the resources or the knowledge to make those changes and it would sort of get left to the wayside, right? But now, everyone knew that the [charge nurse] would be meeting with the manager and something might actually happen. So they are more comfortable bringing things up.” (Nurse, RN5)

This nurse went on to say how the MIIS also increased people’s openness to change: “The way people think about change now … it’s one of the biggest positive things to have come out of [MIIS]. People are actually willing to talk about change and are eager! It’s so different” (Nurse, RN5). One of the performance improvement coaches (PI1) pointed out that part of what changed the culture was that staff
on the unit were “realizing that it takes a lot of work to get things done,” which “created that sense of compassion amongst people.”

Fourth, my informants said that the MIIS tools and practices helped the unit teams to improve their unit’s processes and practices. Prior to the MIIS, one nurse said that they were always “fighting fires” (RN5). The MIIS helped that by improving the communication and coordination in the unit:

“People work together a lot more. Because we are talking more about the things that matter, right? So instead of leaving someone to deal with their own complex family themselves … we were talking about it in our morning huddle saying, ‘Hey let's figure this out! We're all going to work together. Let us know what you need and we will support you through it.’ So I think it has really brought people together.” (Nurse, RN5)

The nurse was also proud of the tangible improvements that they had made to the unit:

“We had some bigger projects where we created new equipment that goes on the walls to make things more efficient for us... And then there was another big one that I was a part of—we redid the whole [storage system] so that we can actually get rid of equipment we weren't using and supplies we weren't using. We saved thousands of dollars by sending all that stuff back ... Plus the nurses were saying, ‘We need more supplies down the hallways.’ So we actually converted our linen closet at the end of each hallway into [storage systems]. So when we needed something we could just run down there as opposed to running back and forth, back and forth, back and forth. So, I mean, it was a huge redesign of our [unit]. It was huge.” (Nurse, RN5)

The benefits of the MIIS were also measured using the pre- and post-implementation surveys done by the performance improvement coaches. The execution of the surveys, however, was inconsistent and so complete data for both the pre- and post-implementation phases are available for only half of the inpatient units. Across these units, there were 210 respondents in the pre-implementation phase (ranging from 11 to 43 people per unit). In the post-implementation phase, there were 134 respondents (ranging from 8 to 24 people per unit). Of the respondents, approximately 75 percent were nurses, 5 percent were management, and 10 percent were administrative staff. Physician participation in the survey was low: in the pre-implementation phase, 12 physicians participated and no physicians filled out a post-implementation survey.
Figure 3.4 - Results of Pre- and Post-Implementation Staff Survey

<table>
<thead>
<tr>
<th>Question</th>
<th>Pre-implementation survey</th>
<th>Post-implementation survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1: I understand what the organization's goals are for the next year.</td>
<td>40%</td>
<td>58%</td>
</tr>
<tr>
<td>Q2: There are regularly scheduled meetings on units/departments that focus on the review of unit/department performance metrics.</td>
<td>71%</td>
<td>88%</td>
</tr>
<tr>
<td>Q3: Department performance measures are openly communicated and displayed.</td>
<td>76%</td>
<td>88%</td>
</tr>
<tr>
<td>Q4: Senior leaders are aware of front line issues and challenges (the way things really are around here).</td>
<td>62%</td>
<td>76%</td>
</tr>
<tr>
<td>Q5: Learning is an important part of our daily work.</td>
<td></td>
<td>93%</td>
</tr>
<tr>
<td>Q6: Employee and physician suggestions on how to improve hospital performance are actively solicited.</td>
<td></td>
<td>94%</td>
</tr>
<tr>
<td>Q7: Employees and physicians understand how their area's performance measures impact the whole organization's…</td>
<td>52%</td>
<td>71%</td>
</tr>
<tr>
<td>Q8: The organization facilitates regular knowledge/idea sharing forums across units/departments that are related to…</td>
<td>49%</td>
<td>74%</td>
</tr>
<tr>
<td>Q9: Visual displays of hospital performance data are regularly reviewed and used to drive improvement.</td>
<td>51%</td>
<td>75%</td>
</tr>
<tr>
<td>Q10: Senior leaders regularly take time to interact with employees at all levels of the organization.</td>
<td>48%</td>
<td>58%</td>
</tr>
<tr>
<td>Q11: Daily huddles and/or meetings result in task assignments to improve processes and to follow up on assignments.</td>
<td>43%</td>
<td>87%</td>
</tr>
<tr>
<td>Q12: When changes are made in my unit/department, employees and physicians are involved in the process.</td>
<td>55%</td>
<td>74%</td>
</tr>
</tbody>
</table>
The aggregated survey results for the inpatient units are shown in Figure 3.4. Members of the performance improvement group and HealthHub executive used these survey results to determine whether and how implementing the MIIS benefitted the organization. By comparing the results before and after the implementation, these data appeared to indicate that the MIIS had positive effects across many dimensions. These data showed, for example, that a higher proportion of staff understood what the organization’s goals were, that there was an increased focus on performance within the units, that there were better connections between senior leaders and the frontline staff, and that many different types of people were involved in efforts to improve processes and performance in the units. The challenges and limitations of this survey approach are discussed in the next section.

During my preliminary fieldwork, my informants spoke positively about the MIIS and highlighted these four benefits the system provided. As described above, it empowered frontline staff, it improved the relationship between the executive and the frontline, it reshaped the culture, and it helped staff improve their unit’s processes and practices. But my informants also said that they faced big challenges both during and after the implementation.

3.4.2 Challenges of implementing the MIIS

During my interviews with performance improvement coaches, managers, and frontline staff who were involved in the inpatient implementation, they described the challenges they faced during the MIIS implementation. They spoke about specific challenges with (1) engaging the physicians, (2) using the MIIS tools and practices as they were designed, and (3) measuring the impact of the MIIS. I provide some details on how my informants described these challenges below.

3.4.2.1 Engaging the physicians

The director of performance improvement said that engaging physicians was one of the most significant challenges faced by HealthHub during the implementation of MIIS in the inpatient units. Physicians
rarely participated in the MIIS practices on the inpatient units. The inpatient unit manager was responsible for implementing the MIIS tools and practices, but the manager had no formal authority over the physicians. One of the performance improvement coaches said that the implementation teams regularly struggled to find “the carrot” to get physicians to participate. In order to encourage their participation, a performance improvement coach (PI1) said they used an “if you build it, they will come” approach: the unit teams implemented the MIIS with non-physician staff and then hoped the physicians saw value in the practices and decide to participate. The performance improvement coach (PI1) went on to say that, “at the end of the day, you can only send [the physicians] the invite. Whether they show up or not is up to them.”

Part of this difficulty arose from the organizational structure of the inpatient units. Although individuals from both the physician and hospital hierarchy worked within the inpatient units, there maintained a separation between the two hierarchies within the organization. A simplified inpatient unit organizational chart is shown in Figure 3.5, where the people that work in the clinic are indicated with thick black borders. From the hospital hierarchy (shown in the white boxes in Figure 3.5), each inpatient unit had a manager who was in charge of the budget, staffing and performance of the unit. The manager, who often had a nursing background, was responsible for the nurses and administrative staff within the unit; but because some of them managed multiple units, they did not have a constant presence on the unit. The day-to-day operational management of the unit was the responsibility of the charge nurse. The charge nurse often had clinical duties (similar to those of a nurse) in addition to providing managerial oversight over the other nurses and the administrative staff within the unit. As noted, these individuals were part of the hospital hierarchy and were specifically assigned to work in a particular inpatient unit.

Physicians also worked on the inpatient units and were ultimately responsible for the care that their patients received. Physicians are denoted by grey boxes in Figure 3.5. But rather than being assigned to work for a specific inpatient unit, physicians belonged to divisions. These divisions were defined by the specialties of the physicians and, ultimately, the types of patient illnesses they treated (e.g., division of cardiology, division of orthopedics). Physicians within a division were responsible for seeing their types of patients across the whole hospital; as such, they would work on many different units. Their clinical
activities included seeing patients on the inpatient units, holding outpatient clinics, performing tests, procedures, or surgeries, and providing consultation services to the emergency department and to other areas within the hospital. As a result, physicians had obligations across many areas within the hospital and were not regularly present on a particular inpatient unit. Rather, physicians dropped in to the inpatient units to assess their patients and write treatment orders (which the nurses would then execute). In addition, inpatient units had many physicians, potentially from multiple divisions, seeing patients within their unit. Ultimately, the physicians were accountable to their division chiefs, not the inpatient unit managers, which made it difficult for the managers to engage the physicians in the MIIS implementation.

**Figure 3.5 - Simplified Inpatient Unit Organizational Chart**

Note: This organization chart has been simplified both to protect the anonymity of HealthHub and to highlight the characteristics most salient for the implementation of the MIIS.

Physicians’ autonomy and independence created difficulties as the unit teams tried to implement new processes and practices that were developed during the team improvement huddles. Making changes was particularly challenging when the new processes or practices required physicians to change their
behavior. For example, one physician described the outrage at the scenario where nurses and managers were trying to implement a change to how physicians did their “ward rounds”:

“We were just having a division meeting recently where nurses from [the unit] were coming and telling us that to improve inpatient stays … we have to discuss with every patient, every day, when we think that they might be able to go home. I mean… I was so incensed! I have had enough of having nursing managers coming and telling me how to do my job…We never go and tell them how to do their job. We never! There’s no physician that turns up at a nursing meeting [and tells them what to do] … The fact is, I refuse to tell every patient, every day, when they’re going to go home. Because for some of them… It’s completely inappropriate … The organizational change that needs to happen in the ward is that the nurses actually need to attend ward rounds. [The nurse] who was in the meeting actually admitted that that’s the fundamental issue. Or, the other issues are that there’s huge variation in practice amongst the physicians. And there are problem physicians who don’t do ward rounds, who don’t turn up, who don’t communicate with the nurses, and because of people like that, they’re trying to bring about an organizational change which, frankly, is insulting to the majority of us who know exactly how to do our job.” (Physician, MD7)

When I asked what this physician planned to do in situations like this, the physician responded, “I actually think I’ll just ignore it, because honestly, I know that I do a pretty good job on the clinical side.”

Those on the hospital hierarchy side of the organization, like the managers and nurses, were constrained in how they could respond to physicians’ non-compliance with these types of change mandates. While informants commented that they struggled to find the “carrot” to engage physicians, they also lacked “the stick” required to increase compliance to organization-led change initiatives.

One performance improvement coach (PI2) said that the challenges with engaging the physicians was that the MIIS (and lean management more broadly) was about improving operational efficiency, which was not a main concern for the physicians. Generally, the physicians were interested in “anything tied to patient outcomes,” but the implementation team had difficulty making the link between MIIS and improved outcomes (described in more detail below). “Doctors like numbers,” said one physician informant (MD6), emphasizing the need to show physicians tangible evidence of impact. The performance improvement coach (PI1) said that in a few inpatient units, the local leadership teams were able to identify metrics that were meaningful to the physician group and include them on the unit scorecard (e.g., readmission rates). However, “In cases where the unit hasn’t been able to find great
indicators that really resonate with a physician group… [MIIS] hasn’t done anything at all [to engage the physicians].”

In explaining the difficulties they faced engaging physicians, one nurse (RN5) noted another issue: physicians were “super busy” and “didn’t want to commit to anything.” The nurse said the physicians did not feel like they could take time away from seeing patients to come and participate in the MIIS practices. Furthermore, physicians’ schedules were often very different from each other as well, which made it challenging to get multiple physicians to participate in the same activity at the same time on a regular basis. If physicians were on the unit and saw MIIS practices underway, one nurse (RN5) said the physicians would think, “Oh, it’s just a nursing thing.”

### 3.4.2.2 Using the MIIS Tools and Practices

The second challenge raised by informants during my preliminary fieldwork was getting the buy-in and alignment from the unit’s staff and management to actually use the tools and practices associated with the MIIS. One nurse commented that others on the unit thought that MIIS was the “flavor of the month” and were concerned about whether it would be important in the organization over the long term. The nurse reflected back on the initial resistance to the MIIS:

> “People don't like change. So, I was okay with seeing and learning about it. But you know, it's hard to sort of visualize what that's going to look like for you and how it’s going to benefit you as a frontline person, right? So it was pretty nerve wracking at first… We had some people who were very closed off to change.” (Nurse, RN5)

One difficulty raised by multiple informants was that the MIIS tools and practices increased the workload for participants. In addition to the time required to attend the daily prep meetings, team improvement huddles, and monthly leadership check-ins, there was time required to actually do the improvement work that came out of those meetings. In some rare cases (and particularly for larger projects), the units provided some dedicated time to staff members to work on a project (i.e., they allocated unit budget to backfill the people who were working on the project for a few hours). But in many cases, as described by a nurse informant (RN5), people were required to do the project work by
“fitting it in” during downtime on regular shifts. One performance improvement team member (PI2) described the rationale for this approach and its challenges:

“It’s tough to be honest. There is no easy answer. For things that we call the ‘just do it’ tasks—those are simple ones—those are just squeezed in between daily work. The hypothesis is that if we fix enough issues that actually create a lot of re-work or unnecessary motion, then we will eventually save enough time that we can do this easily throughout the course of the day. I don’t know how to count that or tell whether or not we are doing okay.” (Performance improvement coach, PI2)

This approach created challenges for the staff and resulted in many people working on the projects outside of their paid working time (e.g., on evenings and weekends or by coming in early to work). An internal research project on the MIIS found that 78 percent of people surveyed said that a “lack of time” was a significant barrier for participating and working on improvements. As one nurse informant (RN5) commented, “It's a lot to assume that somebody can do all of their work plus do another project.” Furthermore, the difficulties associated with an increased workload were also felt at the managerial level. Managers often managed more than one unit, which then multiplied the number of pre-meetings and team improvement huddles they had to attend. As one inpatient manager (AD11) commented, “It can be very challenging. And the thing is, you know, as managers we have other work to do. So it's challenging sometimes to fit this in.”

Another challenge raised by a performance improvement coach was that the MIIS was a complete system but, as an organization, they had not yet put all the pieces together in a way that harnessed their collective potential:

“I don’t think people really see this as a set of strings to make the organizational puppet dance. [To them] it's just, ‘I'm doing a [prep sheet] and there are some important questions to ask.’ They’re not really thinking about the fact that the questions I ask and the way I ask them influences how that person then asks the same sorts of questions to their direct reports. It is not just information flowing up, but it is also reinforcing strategy and building people going down.” (Performance improvement coach, PI2)

Rather than a set of independent practices and tools, the MIIS was designed to be a management system that allowed information and issues to flow upward (from the frontline to the executives) and priorities to
flow down (from the executives to the frontline). But, as the performance improvement coach noted, the MIIS tools and practices had not been fully adopted, leaving gaps in the system.

### 3.4.2.3 Measuring the impact of the MIIS

The third challenge raised by informants during my preliminary fieldwork was the difficulty they had in measuring the impact of the MIIS. During my time at HealthHub, there was increasing pressure on the performance improvement group to determine the value of the MIIS. As described by one performance improvement coach (PI2), the message from the HealthHub executive team was, “Okay, you have invested a lot of time; now help me explain why it has been a success or if it has been a success at all.”

The overarching goal of the MIIS was to develop HealthHub’s people to “solve problems and improve performance” (MIIS training material). But, for the performance improvement team, measuring whether this goal was achieved was a complicated problem. The director of performance improvement (PI3) commented on this difficulty, saying “It’s hard to figure out how to determine the ROI ... How much is patient satisfaction worth? How much is staff engagement worth?” Furthermore, the HealthHub systems did not capture comprehensive data on patient satisfaction or staff engagement on a frequent basis; staff engagement was surveyed annually, and they had a lagging indicator of patient satisfaction based on a small-sample survey performed by a third party.

As noted above, one way the performance improvement group assessed the impact of the MIIS was by surveying the frontline staff before and after the implementation of the MIIS. But relying on these survey results to assess the impact of the program had a number of limitations. First, many of the survey questions were focused at the process level rather than the outcome level. The survey asked, for example, whether there were “regular scheduled meetings on the unit/department that focused on the review of unit/department performance metrics.” While the MIIS may increase the prevalence of these types of meetings, it was unclear whether there was a link between having more meetings and organizational performance. Furthermore, the content of some of the questions virtually ensured that they would see an improvement in the post-implementation phase; many questions were basically asking whether the units
were performing MIIS practices. Given that the units only started the MIIS practices during the implementation, it was inevitable that the scores improved once the MIIS has been implemented. Another limitation was that it was difficult to determine what an improvement in any of these dimensions was worth to the organization. Implementing the MIIS required substantial investment (in both time and money) from the organization and it was unclear how to incorporate the improvements captured in the survey in any sort of return on investment calculation. Finally, drawing valid inference from these data was problematic since, due to the surveying approach, there was a lot of missing data and important populations of the frontline staff, like physicians, were not represented.

The performance improvement group did recognize the limitations of assessing the impact of the MIIS based on these survey results. When I questioned one performance improvement coach (PI2) over how else to measure the impact of the MIIS, the coach commented that “the easiest thing to do is count the number of improvements made.” But, the coach also recognized the limitations of this metric noting that it was a very “rudimentary measure” that did not account for the value of the improvement: “It could be hanging a hook or it could be starting chemo earlier in the day—two very big extremes; they get tallied as one” (PI2).

Another approach discussed by a performance improvement coach was to look at each unit’s scorecards to see what projects they were working on and what improvements they had made. For example, if one unit had a project to reduce the length of stay for patients, then the performance improvement team could calculate the benefit from that initiative and assign it as a benefit of the MIIS implementation. At the time of my fieldwork, the performance improvement group was not measuring program performance in this way.

In summary, at the time of my fieldwork, the performance improvement group was having a difficult time measuring the impact the MIIS had generated for the organization. They were able to communicate the total number of idea cards implemented, but they were not able to identify the value of those changes. They were able to share success stories from units that had used the MIIS tools and practices to generate improvements in metrics like hand hygiene compliance or medication reconciliation.
But it remained unclear whether these gains were maintained in the long run and what impact they generated for the organization.

At the same time, conversations I observed in the executive committee revealed that some of the MIIS-related practices were detrimental with respect to HealthHub’s existing performance metrics. An important performance metric at HealthHub (and in many hospitals) was “hours per patient day,” which was often referred to within the organization by its acronym “HPPD.” It was a widely used budgetary staffing measure for nursing that captured the total number of hours worked by nurses who were providing direct patient care, per patient day, in an inpatient unit. HealthHub tried to keep the HPPD as low as possible without sacrificing patient care. The difficulty with the MIIS practices was that they pulled the nurses away from the patients’ bedsides and replaced time spent providing direct clinical care with time spent on administrative tasks (such as attending meetings and working on idea cards). From the hospital’s perspective, the MIIS was negatively affecting their HPPD performance.

As this issue became apparent, the performance improvement team and the executive steering team explored the option of having a separate budget for each unit to support participation in the MIIS practices. This budget would be classified as “indirect care time” and so would not be included in the HPPD calculation. With this solution, they believed they could preserve their HPPD performance while ensuring that the frontline staff on the units had the time required to participate in the MIIS practices. But, as they worked through the details of the solution, questions were raised about how much money each unit actually needed to support the MIIS practices.

The performance improvement team suggested that they should set a target of having four percent of time spent on indirect care activities, like participating in the MIIS. This target, which was almost twice as large as HealthHub’s current allocation, came from benchmarking against Lean Hospital Systems (the organization on which the MIIS was based). In responding to the magnitude of this budget request, the executive steering team raised many concerns and alternative solutions. For example, one executive asked, “Have we struck a balance between working on the right things versus doing everything? Maybe we have the right amount of time but are not doing the right stuff” (Executive, EX9). Another
commented, “But this is the quality leader’s job, right? That’s why we created the role” (Executive, EX4).

Yet another executive called into question the validity of the four percent target:

“Do you know what [Lean Hospital’s] logic is? How did they determine four percent? Did they test two percent, then six percent? We need to think about how much time we need to invest in improvement work. If it comes from patient care, then safety is compromised and that isn’t a good thing” (Executive, EX3)

At the time I ended my fieldwork, there was no resolution on this issue. The performance improvement team and the executive steering committee recognized the need to invest in providing protected time to frontline staff to work on improvement projects, but the fiscal environment was not favorable to this sort of allocation. The MIIS was being implemented at a time of cutbacks and layoffs and allocating more funding to tasks other than patient care was not a viable strategy, particularly given the inability to quantify the financial impact of the MIIS practices.

My preliminary fieldwork to understand the MIIS template and the benefits and challenges experienced during the inpatient implementation helped to focus my subsequent fieldwork on the outpatient rollout of the MIIS. It sensitized me to certain issues, highlighting the importance of issues like physician engagement, measuring impact, and how the MIIS tools and practices fit in to the existing work of frontline staff. In the next section, I provide some background information on the outpatient rollout of the MIIS at HealthHub and describe the five focal outpatient clinics in detail. Throughout the descriptions, I will emphasize the outpatient environment’s similarities and differences with the inpatient environment and note why these differences could matter in the context of the MIIS implementation.

### 3.5 MIIS in the Outpatient Clinics

Once HealthHub had completed the inpatient rollout, they turned their attention to the outpatient clinics. By this time, there was a strong appetite in the organization to implement the MIIS; many VPs, directors, and managers were pushing to have the MIIS implemented in their areas. At executive steering committee meetings, I observed directors and VPs arguing over whose areas would have priority in the upcoming rollout waves. In fact, some areas had gone ahead and tried to implement aspects of the MIIS on their
units without any central support or guidance. One performance improvement coach (PI1) told me how this created challenges for the performance improvement group since the adopted MIIS practices were not being performed in the manner in which they had been designed.

At the outset of the outpatient implementation, the performance improvement team had very little working knowledge of the outpatient clinic environment. Because of this, they planned a slow rollout with gaps in between the implementation waves so that they could learn and adapt their approach as they went along. One performance improvement coach (PI1) explained that they were “still trying to figure out how MIIS is going to look in those areas” and that they wanted to “give ourselves the buffer essentially.” In the first phase of the outpatient rollout, the performance improvement group, in consultation with the HealthHub executive, selected two clinics and planned to experiment with some of the MIIS tools and practices in these environments. They selected two clinics which they believed were the most amenable to change, either because they had some previous experience with lean management or they had an enthusiastic physician willing to be the “physician champion.” After piloting the MIIS in these two clinics, the performance improvement team began the full rollout to all of the outpatient clinics.

3.5.1 A Primer on the Outpatient Clinics

During my fieldwork, I collected and analyzed data on the MIIS rollout in the first five outpatient clinics to implement the program: Head Clinic, Limb Clinic, Body Clinic, Complex Clinic, and Social Clinic. The clinic names are all pseudonyms for confidentiality purposes. Far more than with the inpatient units, the internal organization and operations of the outpatient clinics at HealthHub were complex. In this section, I provide an overview of the outpatient environment at HealthHub, after which I describe, in detail, the five focal outpatient clinics in my study.

HealthHub had 20 outpatient clinics, though the exact number was unclear. As one performance improvement coach (PI1) pointed out, “it really comes down to how people define a clinic. It really changes.” Within an outpatient clinic, there were often multiple sub-clinics which reflected different
patient types (i.e., different diseases or disorders within the same bodily system). There was often one
general sub-clinic and multiple sub-clinics geared toward patients of a particular specialty. Furthermore,
each of these sub-clinics could occur multiple times each week, which I refer to as sub-clinic instances. A sample outpatient structure and its associated terminology is shown in Figure 3.6.

Figure 3.6 - Example of Outpatient Clinic Structure and Terminology

At a high level, the organizational structure of the outpatient clinics was similar to that of the inpatient units. From the hospital hierarchy side of HealthHub, the outpatient clinics were managed by a director of outpatient services who had outpatient clinic managers as direct reports. These managers each oversaw between two and seven outpatient clinics (compared to managers on the inpatient units who oversaw one or two units). The director of outpatient services assigned the managers their clinics with a view to balance the managers’ workloads, which in this context was shaped predominantly by the clinic’s patient volumes and complexity. There was also one quality leader who supported all the outpatient clinics with quality improvement initiatives as well as managing regulatory requirements (pertaining to accreditation, quality certifications and risk management).

A simplified organization structure for one outpatient clinic is shown in Figure 3.7, which fits into the broader organization structure depicted in Figure 3.1. The managers of the outpatient clinics managed most of the non-physician staff in the clinics, including nurses, administrative staff, and any specialized clinic clinical staff relevant for the clinic’s patients’ needs. Within the administrative staff,
some clinics had recently implemented a flow coordinator administrative role, which was designed to improve the patient flow and operations of the clinic. This role had some similarities to the charge nurse role in the inpatient units; but because the flow coordinators were not clinical, they had considerably less authority within the clinics and could not direct the activities of others within the clinic. The actual duties of the flow coordinator differed across outpatient clinics and depended on both the needs of the clinic and the preferences of the clinic’s physicians. Some clinics also required expertise from allied health providers (such as social workers, physical therapists, occupational therapists, and dieticians), but these roles did not report to the outpatient clinic manager (as illustrated in Figure 3.7). Rather, they reported to a professional practice manager who oversaw all the individuals with a specific role within the hospital (i.e., the social work professional practice manager oversaw all the social workers in the hospital). Many clinics also employed nurse practitioners. The nurse practitioners were unique in that they reported directly to the director of outpatient services (bypassing the clinic manager in the hierarchy) as well as the professional practice manager for all the nurse practitioners in the hospital. Similar to the inpatient units, the outpatient clinic managers were not in charge of the physicians that provided services within the outpatient clinics. These physicians were loosely accountable to the physician director of the clinic (if there was one) and their division chief.

Where outpatient clinic differed from inpatient units was in their operations. Outpatient clinics were often described as “physician-led.” On the inpatient units, nurses and administrative staff were always in the unit and managed the operations; physicians would just visit the units to see their patients when required. In contrast, in the outpatient clinics, the operations were structured around the physicians who had patient appointments booked, usually in 15-minute increments, from the start of clinic until the end. Although the non-physician staff (like nurses) did not formally report to the physicians, the physicians often directed their activities and the non-physician staff often tailored their activities and approaches to the preferences of each physician. In addition, because the managers oversaw multiple clinics, they were not involved in the day-to-day operations of the clinics; many clinics maintained a self-managing culture where the physicians, nurses, and administrative staff worked together to run the clinic.
This difference in who managed the operations was salient given the challenges faced by the inpatient units regarding physician engagement during the MIIS implementation. On the inpatient units, the unit teams could implement MIIS practices regardless of whether the physicians participated (since they did not play as central a role in the unit operations). But in the outpatient clinics, the physicians’ central roles in clinic operations made gaining physician engagement essential.

**Figure 3.7 - Simplified Outpatient Clinic Organizational Chart**

![Organizational Chart](image)

Legend:
- Physician Hierarchy
- Hospital Hierarchy
- Works in Clinic

- Division Chief
- Physician Director of Clinics
- Outpatient Manager
- Nurse Practitioners
- Professional Practice Manager: Nurse Practitioners
- Professional Practice Manager: Discipline A
- Professional Practice Manager: Discipline B
- Allied Health Discipline A
- Allied Health Discipline B
- Nurses
- Admin Staff
- Specialized clinical staff

Note: This organization chart has been simplified both to protect the anonymity of HealthHub and to highlight the characteristics most salient for the implementation of the MIIS.
As noted, the organizational structure and operations of the outpatient clinics were complex. In addition to this complexity compared to inpatient, there was also considerable variation in the structure and operations between clinics. As described below in the detailed descriptions of each of the focal clinics, the outpatient clinics varied on many dimensions including, for example, patient volume, patient complexity (e.g., tests required, acuity), size of the physician group, level of inter-disciplinarity, budget and capital intensity of the work. Clinic schedules and workflow also varied across clinics: some clinics ran from 8 a.m. to 4 p.m. every day with multiple physicians seeing patients while others only occurred one day a week; some had one sub-clinic running at a time while others had multiple sub-clinics co-occurring. Despite these differences, all the clinics were tasked with implementing the same set of tools and practices. Below, I will describe each of the focal outpatient clinics: Head Clinic, Limb Clinic, Body Clinic, Social Clinic, and Complex Clinic.

3.5.2 Head Clinic

Head Clinic was a high-volume surgical clinic within HealthHub. There were two sub-clinics (Sub-Clinic Head1 and Sub-Clinic Head2) within the clinic, each of which serviced a distinct patient type. During a clinic visit, patients usually saw a physician and a non-physician clinician (e.g., nurse) and had interactions with clerks or coordinators when they arrived at reception or when they had to book follow-up appointments.

The organizational structure of Head Clinic followed, in most respects, the general template for outpatient clinics. From the hospital hierarchy, Head Clinic had a manager who had a nursing background and managed Head Clinic as well as other outpatient clinics in the hospital. Like all outpatient clinic managers, the manager was not involved in the day-to-day operations of the clinic as the role was predominantly in the administrative realm (e.g., meetings, budgets, dealing with issues that got escalated). The fact that the manager oversaw multiple clinics meant that they were not regularly present in Head Clinic. This led to unclear lines of authority and responsibility in the clinic. For example, staff often asked
the physicians about vacation days or other admin issues even though the physicians had no authority in that domain. The manager had taken on the role at a time when its scope and expectations had recently changed significantly: Head Clinic previously had a full-time manager dedicated to the clinic who oversaw the administrative tasks as well as the day-to-day operations.

The manager was responsible for the non-physician clinicians, administrative staff (including clerks and coordinators), and specialized clinical staff in the clinic. Compared to other clinics, this clinic had a very large staff and a high ratio of clinic staff to physicians. Each sub-clinic had a flow coordinator who managed the clinic flow and was the touch point for any problems that arose throughout the day. Unlike flow coordinators in other clinics, the flow coordinators in Head Clinic used to work as non-physician clinicians in the clinic, which increased their credibility among the clinic’s staff. The flow coordinators were frequently required to direct the activities of the clinic staff. The clinic had largely the same group of non-physician staff working every day. This differed from an inpatient unit where the nurses rotated shifts and the team membership regularly changed.

From the physician hierarchy, there was a physician who was the director of the outpatient clinic; from the physician perspective, the physician director was closely involved in the day-to-day running of Head Clinic. Physicians working within the clinic tended to work for either of the sub-clinics, but not both. Physicians varied in the amount they worked in the clinic: from one day per week, to one day per month. There were also numerous residents and fellows working in both sub-clinics under the supervision of the staff physicians. The staff physicians were expected to provide clinical care, teach residents and fellows, and perform research.

Operationally, Head Clinic was open every day of the year. The first patient was booked for 8 a.m. and the clinic closed at 4 p.m. In Sub-Clinic Head2, on days where one of the senior physicians was in clinic, they had a pre-clinic huddle. This huddle was for physicians, residents, and fellows, and the goal was to review the patient list for the day. They talked about clinical issues related to each patient and flagged patients that may have complications. This huddle also served a teaching purpose and ensured that the residents and fellows were prepared for the day’s patients. This was a physician practice that had
been happening for over a year before the implementation of the MIIS on Head Clinic. The flow coordinator also attended this huddle on an ad hoc basis in order to understand what the potential issues were for the day. In Sub-Clinic Head1, they did not do this kind of physician huddle. Instead, they had a weekly huddle led by the flow coordinator. This huddle was a one-way flow of operational information from the flow coordinator to the physicians and staff who attended. The flow coordinator shared information on the upcoming schedule, any important issues that had come up, and any project updates. This practice had been going on for approximately one year before the implementation of the MIIS in Head Clinic. Its implementation was an attempt to mimic the MIIS-related huddles that were already occurring on the inpatient units.

The main goal of the flow coordinator was to make the day run smoothly and finish the clinic on time. The flow coordinators allocated the clinic’s resources (in collaboration with the physicians) according to the needs of the various physicians. If a physician had a particularly busy day, they may be allocated extra rooms, or have extra people assigned to assist them in their work. This clinic had a good reputation within the hospital for not “going over” (i.e., for ending clinic on time), which was quite unique among clinics.

### 3.5.3 Limb Clinic

Like Head Clinic, Limb Clinic was also a surgical clinic; it was a very high-volume clinic where physicians often saw over 150 patients in a day. Some patients were seen in Limb Clinic for chronic conditions over many years, while others were seen in the clinic a small number of times specifically for a surgical intervention. Patients were often in clinic for many hours waiting to see the physician and often had to have diagnostic tests done during their visit. Within Limb Clinic, there was a general sub-clinic and many specialty sub-clinics that catered to specific subsets of patients.

The organizational structure of Limb Clinic was similar to the general structure shown in Figure 3.7. From the hospital hierarchy, Limb Clinic had a manager with a nursing background who also
managed many other outpatient clinics and so was not particularly involved in the day-to-day operations of the clinic. Limb Clinic had nurses who reported directly to the manager but worked most closely with the physicians. The nurses provided general clinical support to the physicians and were not assigned to work consistently with the same physician over time; they acted like general clinic resources. The clinic also had specialized clinical technicians who provided services required by Limb Clinic’s patient population. There were also two nurse practitioners in the clinic. These nurse practitioners had their own sets of patients who they saw independently of the physicians. It was on this dimension—their ability to have their own independent practice—that nurse practitioners differed from nurses. The nurse practitioners reported directly to the director of outpatient services, as well as to their professional practice manager. The clinic also had allied health providers (e.g., social workers, physiotherapists) who reported to their own professional practice manager. At the time of my fieldwork, Limb Clinic had recently added a flow coordinator who managed the treatment room allocation across physicians and supported the physicians by putting patients in the rooms. In addition to the flow coordinator, there were many clerks and coordinators within the clinic.

From the physician hierarchy, there were different physicians in the clinic seeing patients each day, though there was some regularity to the schedule each week and month (e.g., a physician may hold a clinic weekly every Tuesday and Thursday, or a physician may hold a clinic once a month on the third Friday). When running a clinic, each physician spent between five and eight hours in clinic. Finally, there were many residents and fellows who worked regularly in the clinic.

Operationally, Limb Clinic was recognized as one of the busiest clinics in the hospital. Limb Clinic usually opened at 8 a.m. every morning and had patients booked until 4 p.m. The tempo of the clinic was very busy in the morning and started to slow down in the early afternoon. This pacing arose since physicians’ schedules were often double- and triple-booked in the morning and, as a result, it took many hours for them to work through the backlog. This approach to scheduling, while not uncommon in the hospital, tended to create long wait times for patients. This practice existed due to both the high demand for appointments and the frequency of patient “no-shows.”
Although patients were booked for appointments starting at 8 a.m., many physicians did not actually arrive in clinic or see their patients until one or two hours later. The exact time that the physicians arrived in clinic varied considerably across physicians. This was a contentious issue in the clinic since the non-physicians believed that the physicians’ late starts were the cause of clinic delays and long wait times, while the physicians said that if they came on time, then they would just sit around doing nothing while they waited for the patient to be ready to be seen by the physician. The physicians’ argument was that it took a long time for the patients to get registered, get put into exam rooms, be seen by the nurse, and that all of these things had to happen before the physician could see the patient. At one point, the manager of the clinic had the clinic staff tracking what time the physicians showed up. This practice was stopped when the physician chief learned about it and felt that it was not appropriate.

The flow coordinator spent the day constantly moving either paper or patients around the clinic. The location of a patient chart within the clinic served two purposes: it indicated where the patient was in their treatment journey, and it served as a trigger to indicate that it was time for the next step. There were no automated notifications for when patients left rooms, went to tests, or had returned from tests, and so a patient could not proceed to the next step in the process until someone noticed that a room was empty or that there was a chart sitting in a specific location (which then triggered a specific action). Although staff did not complain about the system, it generated waste (according to lean management’s definition). The reliance on paper also meant that some steps were missed if, for example, a patient forgot to hand in a form.

### 3.5.4 Body Clinic

Whereas Limb and Head Clinic were surgical clinics, Body Clinic was a medical clinic which meant that they had non-surgical patients who often had chronic conditions that required regular visits to specialists. There were three main sub-clinics (Body1, Body2, and Body3) and a few smaller sub-clinics. Sub-Clinic Body1 was a “general” clinic, and the other sub-clinics catered to specific subsets of the patients. Body
Clinic had moderate patient volumes; they were significantly lower than both Limb and Head Clinic, but much higher than the patient volumes in Social and Complex Clinics.

Like the other clinics, Body Clinic had a manager with a nursing background who was responsible for multiple outpatient clinics (including Social Clinic and Complex Clinic which I describe in the next sections). Although the clinic’s nurses reported to the clinic’s manager, they worked most closely with the physicians in the day-to-day. In contrast to Limb Clinic, the nurses were often assigned to support specific physicians on an ongoing basis, though there were a couple of different assignment configurations that occurred. First, if the nurses had expertise that aligned with one of the specialty sub-clinics, they might be assigned to provide nursing support for all the physicians who had patients in a specific specialty sub-clinic. A second configuration was that the nurse worked with a specific physician regardless of which sub-clinic they were working in (i.e., they work with Dr. X when the physician works in Sub-Clinics Body1 and Body 2). The physician-nurse pairing tended to be consistent over time (with respect to specific sub-clinics), which led to strong relationships between the physician and their nurse.

Unlike the inpatient units, the nurses in Body Clinic were not present in the clinic unless their physician was seeing patients. The nurses’ duties involved both supporting the physicians when they were in the clinic seeing patients and supporting the physicians’ patients outside of clinic hours. This support included assessing test results, adjusting treatment protocols, communicating with patients, reviewing and adjusting the patient lists for future clinics, and other tasks. In some cases, this nursing work was done independently of the physician and other times it required the nurse to be in contact with the physician. The role of the clinic nurse differed substantially from the role of the nurse on an inpatient unit where much of the time was spent providing hands-on care and administering medications.

Body Clinic had a flow coordinator whose non-clinical role was dedicated to ensuring the smooth flow of patients in the clinic. Every day in Body Clinic, the flow coordinator was responsible for printing out each physician’s patient list and taping them up in the clinic’s central hub area. The flow coordinator was also responsible for assigning the physicians a set of exam rooms to use for the day. The allocation of the exam rooms depended on the physician’s patient volume, the number of other sub-clinics running...
concurrently, and physician preferences (i.e., some physicians liked some rooms more than others). The flow coordinator’s job was to put patients in rooms, manage the charts and paperwork, and, for some physicians’ sub-clinics, take the patients’ vital statistics. Given that clinics were often overbooked (with urgent patients added on to the originally scheduled clinic), the majority of clinics “went over” (i.e., they ended well past their official end time). As a result, the flow coordinator often strategically held rooms empty at the end of the morning (even if the morning clinic was still running and was backed up) to ensure that the afternoon clinic had rooms ready for them when they started. In addition to the flow coordinator, there are two full-time clerks who managed the front desk, scheduled patients, and managed the phones. These three administrative roles worked full-time and so worked across all the different sub-clinics, with all the physicians and nurses in Body Clinic.

At the outset of my research, Body Clinic had recently experienced a big reorganization where long-term staff members were let go and the organization of the hospital staff and clinicians was restructured. This restructuring included the creation of the flow coordinator role (which replaced a clinical nursing role).

From the physician hierarchy, Body Clinic had a physician who acted as the director of the clinic. As the director, this physician managed the wait lists and facilitated matching patients to physicians. Although the physicians had their own specialties, they often saw patients in multiple sub-clinics (i.e., they saw patients in their specialty sub-clinic Body2 as well as the general sub-clinic Body1). There were also numerous residents and fellows working in the division, but they did not come to the clinic regularly.

Operationally, the schedule for Body Clinic was very complicated, with some sub-clinics happening multiple instances per week (as per Figure 3.6) and others on a biweekly or monthly schedule. Furthermore, each instance of a sub-clinic could have different physicians working in it depending on the day (e.g., Sub-Clinic Body2 has Physician A on Tuesday afternoon and Physician B and C on Thursday morning). Sub-clinics started early in the morning, mid-morning, or in the afternoon at various times reflecting the physicians’ schedules and preferences. Each physician also worked in the clinic multiple times each week, potentially for different sub-clinics (i.e., Physician D is in clinic Monday afternoons for
Sub-Clinic Body2 and then Wednesday afternoons for Sub-Clinic Body1). Although there were, at times, multiple physicians having clinic concurrently, they predominantly worked separately. Sometimes they each had their own nurse, while at other times they shared a nurse. Note that nurse practitioners were also seeing patients for some of the sub-clinics at the same time as the physicians.

Each sub-clinic instance differed in how they coordinated and structured their operational flow and these differences predominantly reflected differences in physician preferences. For example, the two physicians who were in Sub-Clinic Body2 on a specific morning every week had decided that they would do a pre-clinic meeting in which they would run through the patient list with the whole team. It was expected that the physicians, nurse practitioners, nurses, the flow coordinator and the relevant allied health providers would arrive 15 minutes before the clinic start time and they would quickly run through the list of patients being seen that morning. The physicians would indicate what they needed the flow coordinator to do for each patient (i.e., take the patient’s height and weight), whether the patient should see the allied health provider, whether the patient was appropriate for research studies, and whether it was appropriate for them to be seen by the residents or fellows. Furthermore, there was some dialogue between the nurse practitioner and the physicians related to the treatment of the nurse practitioner’s patients (primarily if there were complications). Although this huddle was found to be valuable for the physicians, the nurses, and the flow coordinator, the practice did not spread to other sub-clinics or even other instances of the same sub-clinic. The practice failed to spread even though all the participants were also involved in other sub-clinics. This type of practice variation occurred between sub-clinics but also within sub-clinics.

There was also significant variation in how the physicians and nurses worked together within Body Clinic. The nurses tended to adapt their practices to match the preferences and needs of the physicians for whom they were working. For example, in some physician-nurse pairings, they had a set meeting time weekly to review the patients for the following week and determine what actions needed to be taken in advance of the appointments. In other pairings, the nurse reviewed the list independently and
raised any issues with the physician. When seeing the patients, nurses also often catered to each physician’s preferred practices.

Physician preferences also shaped clinic operations and performance by affecting how the clinics were scheduled. Some clinics regularly ran over the allotted time, sometimes by many hours, predominantly because they were regularly overbooked. While there was a widespread acceptance within the clinic that the whole clinic was over-prescribed, some physicians’ practices exacerbated the issue. For example, some physicians wanted to see patients to discuss test results while other physicians were fine discussing results over the phone. This type of decision was largely left up to the discretion of the individual physician. Another example is that some physicians would put patients on a medication with instructions for how to adjust the dosage in certain circumstances, while others would bring the patient back in after a few weeks to monitor how the patient was responding to the medication. These physician preferences had significant effects on clinic operations and flow.

3.5.5 Social Clinic

Social Clinic had a number of unique characteristics. It was a very small medical outpatient clinic that dealt with patients who were victims of abuse. The patients were usually seen a small number of times, though some were followed for multiple years. The patients often had very complex social situations and could be difficult to treat and manage behaviorally. The clinic had low patient volumes; they often saw between one and five patients a day and many of these visits were unscheduled. In that sense, this clinic ran more like an emergency room where the flows were unpredictable. The clinic was staffed by a very broad multidisciplinary team and maintained close partnerships with the police and social services in the community. The clinic also provided support to inpatient areas, the emergency department, and community doctors.

The manager of Social Clinic also managed Body Clinic. As with the other outpatient clinics, the manager was not particularly involved in the day-to-day operations of the clinic. This distance was
perhaps exacerbated in Social Clinic because there were only two staff members in the clinic that reported to the manager: the flow coordinator and the clerk. The other staff in the clinic represented a mix of nurse practitioners, psychologists, allied health, and students in these fields. One of the nurse practitioners was also a co-director of the program, which was an uncommon organizational structure within HealthHub. Like the other nurse practitioners, they reported to the director of outpatient services and to their professional practice manager. The allied health providers worked in Social Clinic part-time and reported to their professional practice manager within the hospital.

There were only a small number of physicians working in Social Clinic. One of the physicians acted as a co-director for the program. In addition to the physicians, there were many residents and fellows working in the clinic. The team in Social Clinic was very multi-disciplinary.

The operations of Social Clinic were highly variable. In some instances the patients had pre-set appointments, but in other cases they arrived with little advance warning. The clinic was open daily and provided on-call support every day at any hour. There was no standard flow in this clinic. Patients could be referred from community physicians, police, social workers, other community representatives, or families of patients. Patients could also be referred from other areas within the hospital (e.g., the emergency department or inpatient units). The reasons behind the referrals varied and there were often instances where the patient or family did not want to be there to receive treatment. At times, police had to accompany patients when they were at the hospital. Once at the hospital, the patient’s particular needs shaped the care that they received and the types of clinicians that they saw. The clinic often acted as an intermediary, providing immediate support to patients who had suffered some sort of abuse and connected them with support services available in the community.

3.5.6 Complex Clinic

Like Social Clinic, Complex Clinic was also a very small medical outpatient clinic. The clinic’s patients were all obese with significant co-morbidities (i.e., additional complications such as diabetes or heart
conditions) and also mental health issues. The clinic had a set program for which they accepted a new cohort of patients each quarter. Once accepted into the clinic, patients participated in a long program which combined group therapy, physician treatment, and support by allied health providers such as dieticians and exercise therapists. As a result, the clinic was staffed by a very broad multidisciplinary team. Given the uniqueness of the program, many patients traveled long distances to get to the hospital. The success of the program was measured by a team that tracked patient information (weight, body mass index, etc.) over time.

The manager of Social Clinic was the same manager who oversaw Body Clinic and Complex Clinic. The manager was not very involved in the daily operations of the clinic as there were only two staff members in the clinic that directly reported to the manager—the flow coordinator and a nurse. The other staff in the clinic included nurse practitioners, allied health providers (e.g., social workers, dieticians, exercise therapists, physiotherapists), and students. As illustrated in Figure 3.7, the nurse practitioners reported directly to the director of outpatient services and to their professional practice manager and the allied health providers reported to their professional practice managers. In the clinic, only the flow coordinator and one other person were full-time. All others were part-time in the clinic (though many had additional hours elsewhere in the hospital). The flow coordinator managed the clinic administratively and dealt with managing referrals, coordinating appointments, booking new patients and acted as the contact point for patients in the program.

One unique aspect of this clinic was that there were three physicians who worked in this clinic and they were each from a different division within the hospital and had different specialties. They supported this clinic on a part-time basis. One physician acted as a co-director of the program.

Operationally, Complex Clinic was also unique. The clinic had two separate programs. The main program (Sub-Clinic Complex1) had patients who were referred to the program from within the hospital or from the community (i.e., from the patient’s family doctor, social workers, or other health care practitioners). When a patient was referred, the flow coordinator triaged the referral and forwarded the
patient information to the clinical team. If the team thought that the patient was a fit, the patient was invited to join the program.

The program batched patients into cohorts which started the program quarterly. In the program’s first phase, patients attended group meetings and had individual appointments with members of the clinical team. The appointments reflected the individual needs of the patient. In phase two of the program, each patient had their own care plan depending on their particular situation. Each patient was also supported by a coach from within the clinic team. Lastly, there was a support group where each cohorts’ members met to share their experiences and provide support to each other. During this phase, the patients came in weekly, bi-weekly, or monthly depending on their needs. In the third phase of the program the patients were seen for medical care but the exact nature and tempo of their care varied across the patients. During this phase, the clinic team tried to set the patient up for a successful transition out of the program.

The second program, Sub-Clinic Complex2, was focused on educating parents about health choices for their kids. The program focuses on medical issues, parents’ lack of knowledge, and general education for parenting a child. Similar to the main program, patients/parents are referred to the clinic by medical professionals in the community. In the first phase of the program patients/parents attended regular group sessions. In phase two, which lasted less than a year, the patient/parent came in every three months for a medical check-up and a group meeting.

Operationally, there was a regular structure to the week in Complex Clinic. On Monday, there were very few individual appointments. On Tuesday they had the sessions for Sub-Clinic Complex2 support groups, and some individual appointments. On Wednesday, there were very few individual appointments. On Thursday, they had a team meeting (“rounds”) where they discussed each patient in detail. The team culture was very open and talkative and they often had a hard time keeping to time limits during that meeting. On Thursdays they also saw new groups for Sub-Clinic Complex1 (the main program). On Friday, they held their main medical clinic.

One challenge faced by Complex Clinic was that it had no specific location in the hospital. Rather, they had a set of offices and rooms on two different floors in one wing of the hospital. During the
implementation of the Management Improvement and Innovation System (MIIS), this clinic got a large conference room to use that became their central hub. The treatment areas remained spread out over the hospital.

3.5.7 Challenges of the MIIS on the Outpatient Clinics

The outpatient clinics faced many of the same implementation challenges that were experienced by the inpatient units: they struggled to engage their physicians in a meaningful way; it was difficult to generate buy-in and alignment from the frontline staff and management to actually use the MIIS tools and practices; and it was challenging to quantify the value and impact of the MIIS. But the rollout of the MIIS to the outpatient clinics also faced some unique challenges and sources of complexity.

First, because of pressure from the executive to speed up the implementation, the performance improvement team tightened the MIIS timelines both by removing the buffer between implementation waves and by rolling out the program to other areas of the hospital at the same time as the outpatient rollout. Without the buffer, it was difficult for the performance improvement group to take what they learned in one wave, adapt the MIIS tools and practices to fit better with the outpatient environment, and then roll out the improved approach in the subsequent waves. As a result, even though the first two outpatient clinics struggled to implement some of the MIIS tools and practices and voiced concerns about its viability in that environment, the performance improvement group continued to roll out the MIIS tools and practices across the outpatient clinics.

The second unique source of complexity faced by the outpatient clinics during the MIIS rollout was that the workflows and clinic operations were complicated and varied significantly both within and between clinics. As one performance improvement coach (PI2) described it, “In outpatient, often you will have multiple physicians that have a small team with them co-located in a space for a fraction of a week… and they each own the flow of their own business.” On this dimension, the outpatient clinics differed markedly from the inpatient units on which the MIIS was developed. The performance
improvement coach went on to make this comparison explicitly, saying, “Contrast that with the inpatient areas where it is typically the manager or the charge nurse that owns the flow or is responsible for the flow of the business.”

The third challenge for the outpatient clinics was a lack of staff time available to support the workload associated with the MIIS. In contrast to the inpatient units, the outpatient clinics had less support from their managers who had to split their time across many clinics. For outpatient managers who had, for example, six different clinics to manage, it seemed improbable to them that they could participate in daily prep meetings, and team improvement huddles for all of their clinics each week. If these meetings were actually held to 15 minutes each (and without factoring in the time spend walking all over the hospital to each of the clinics), these new practices would take up more than eight hours of manager time each week. Similarly, the outpatient clinics also had less support from their quality leader who supported all 20 of the outpatient clinics. If the outpatient quality leader were to attend all of these meetings, it would take 35 hours per week. Therefore, relying on the manager and quality leader to support the MIIS practices within the clinics in the long term was not a viable option. One performance improvement coach described the challenge:

“[The challenge is] they don't have a quality leader as available, right? Only one quality leader! Also, the fact that the manager is split. Because there’s five or six units that a manager is covering, they can’t go through five or six prep sheets in a day. So there is that. There is decreased resources that we can pull on.” (Performance improvement coach, PI1)

During the implementation of the MIIS on the inpatient units, the performance improvement team saw how challenging it was to engage physicians in a meaningful way. They thought it was going to be more difficult in the outpatient environment but also more important. One of my performance improvement coaches explained why physician engagement was so crucial:

“So we have to figure out what that carrot is. Because at the end of the day a clinic is very physician driven. There might be three physicians throughout the day, each physician driving their specific clinics differently within a specific space. Physicians change depending on the day. So how does it actually work? We need to figure out what makes them want to participate. What I do know is that they care a lot about flow because they want to see more patients in the limited
amount of time. So how can we tailor this tool or tailor our wording such that it really gets that across.” (Performance improvement coach, PI2)

HealthHub’s experience implementing the MIIS in their outpatient clinics was the main focus of my study. In the next chapter, I explore in detail the issue of physician engagement during the rollout of the MIIS to five outpatient clinics: Head Clinic, Limb Clinic, Body Clinic, Complex Clinic, and Social Clinic.
4. Negotiating Change in Professional Contexts

4.1 Introduction

As organizations try to implement change or reconfigure their internal processes and practices to achieve desired performance outcomes, the presence of professionals in the workforce can represent a complicating factor since their goals and interests may not align with those of the organization (Edmondson et al. 2001; Huisings 2014; Kellogg 2009). The challenge arises because professionals are very highly skilled, specialized, and autonomous workers who tend to retain considerable control over their work even when it is performed within larger, more bureaucratic organizations (Abbott 1988; Freidson 1988). Furthermore, professionals often have strong ties to their profession and take their cues for what constitutes appropriate behavior from the profession itself rather than from the organizations in which they work. These characteristics of professionals render many of the organization’s tools of influence and control ineffectual (Alvesson and Kärreman 2004; Greenwood and Empson 2003; Sharma 1997) such that managing professionals is often likened to the problem of “herding cats” (von Nordenflycht 2010). The difficulties of managing a professional workforce can be most salient during times of change, particularly if the changes require professionals to modify their own work practices (Tucker et al. 2007).
At least since Abbott (1988), studies of change in professional contexts have often focused on the jurisdictional boundaries of professional work (Barley 1986; DiBenigno and Kellogg 2014; Kellogg 2014). Professional jurisdictions represent the link between professionals and their work; they comprise the technical tasks—tasks involving diagnosis, inference and treatment—over which each profession has a monopoly (Abbott 1988). Traditionally, disputes over jurisdictions have involved multiple professions competing with each other to expand the set of tasks over which they have control (Halpern 1992; Kellogg 2014; Suddaby and Greenwood 2005). In the system of professions, these jurisdictional boundaries are constantly in tension, as professions try to both annex attractive domains held by others and defend their own domains from attack (Abbott 1988).

More recently, scholars have questioned the role of organizations in these jurisdictional disputes. Rather than organizations operating simply as backdrops for jurisdictional struggles between different professional groups (e.g., Bechky 2003), researchers are exploring whether and how organizations play a more agentic role in shaping the division of expert labor (Galperin 2014; Huising 2014). This research builds from an earlier stream of work, starting in the 1960’s, which examined how working within bureaucratic organizations might affect professionals’ autonomy and the quality of services they provide (Barley and Tolbert 1991; Wallace 1995). With organizations actively participating in these jurisdictional disputes, it is crucial to understand more about the boundaries between professions and organizations (e.g., law firms and lawyers; or hospitals and physicians; or universities and tenured faculty) and not just focus on boundaries between different professions (e.g., lawyers and accountants; or physicians and nurses).

Professions and organizations are often assumed to have competing or even, at times, conflicting interests (Barley and Tolbert 1991; Greenwood et al. 2006; Hall 1968). The underlying logic of the professions emphasizes freedom of judgment and discretion in performing their technical work, which may be at odds with the logic of bureaucratic organization’s emphasis on efficiency and standardization (Freidson 2001). This divergence of interests has been particularly evident in recent years as organizations have sought to increase efficiency by standardizing professional work, codifying their
knowledge or shifting tasks away from professionals and towards less expensive employees (Brivot 2011; Galperin 2014; Huising 2014; Morris 2001; Waring and Currie 2009). This trend toward the bureaucratization or standardization of professional work represents a critical threat to the professions’ monopolies and power (Larson 1977). Organizational changes such as these, which attempt to shift these jurisdictional boundaries, are often resisted by professionals (Galperin 2014; Huising 2014). Professions fight these encroachments in multiple arenas, appealing to the government, the public or the organizations in which they work (Abbott 1988).

But not all organizational changes are attempts by the organization to take control over professional tasks; some may be more tangential in scope, having no effect on the professional’s technical work. For example, organizations facing pressure to improve performance may try to redesign internal processes to eliminate inefficiencies and improve organizational performance without changing the internal division of labor within the organization. Abbott’s (1988) model does not explain how professions or professionals respond to these types of organizational changes that do not threaten their jurisdictional control over their technical tasks. Although these changes may be not affect the professionals’ technical tasks, they can be impactful for the organization. Since professionals are often situated in the organization’s most central knowledge and workflows (Mintzberg 1979), their participation in designing and implementing organizational change can increase both the likelihood of success and the value the change delivers.

Given its importance, how can organizations make these types of changes to their internal processes and practices when they have professionals in the workforce? How can they engage their professionals in change? Our current understanding of change in professionalized context does not explicate how professionals respond to these types of changes that could generate positive outcomes for the organization while leaving the professionals’ technical work untouched.

In this paper, I analyze how one organization attempted to engage their professionals in an organizational change that had little impact on the professionals’ control over their technical professional tasks. I draw on ethnographic data collected within one hospital that was implementing a change to its
internal processes and practices. Throughout this study, I focus on one type of professional—the physician—since they are the dominant profession in healthcare (Freidson 1970) and they possess all the characteristics that make professionals challenging during organizational change. I study how the hospital—HealthHub (a pseudonym)—implemented a new Management Improvement and Innovation System (MIIS) across five internal outpatient clinics. The MIIS was a set of new tools and practices designed to engage the frontline staff, including the physicians, in problem solving and process innovation and to ultimately improve the hospital’s performance. I study how each clinic team, which included physicians, worked to design and implement MIIS tools and practices, many of which represented small changes to the daily operations of the clinic. The new system had the potential to improve outcomes that mattered to both the hospital and the physicians and yet, even in this scenario of a relatively small change, the clinic teams often faced challenges in engaging their physicians in the new practices.

The implementation was highly contested. Although none of the changes targeted the physicians’ technical work (e.g., diagnosing and treating patients), many changes were actively or passively resisted by physicians in all five clinics. What emerged from the analysis was that physicians’ jurisdictions within the organization extended beyond their technical work into more processual domains that reflected how the work was executed. It was in these areas that the organization’s and professionals’ jurisdictions overlapped. Conflict arose due to the fact that the organization’s proposed changes infringed on these processual domains of professional practice and ultimately on the professionals’ autonomy. While many physicians disengaged and simply stopped participating in the change, some physicians in some instances ceded their autonomy over the processual domains of their jurisdiction and participated in the new practices willingly.

This research expands our understanding of professional jurisdictions, particularly in relation to how they are enacted within organizations. It foregrounds the organization as an active player in shaping the division of expert labor and proposes that the often noted conflict between organizations and professions can be understood as arising from contested jurisdictional claims over both the technical
content of professional work and the processes surrounding the work. The research suggests that these conflicts can arise even for small changes that do not affect the professionals’ technical work.

4.2 Literature

4.2.1 Professions, Professionals, and their Work

Professionals are one of the largest and fastest growing occupational groups (Gorman and Sandefur 2011). They are distinguished from other occupations by having a unique set of characteristics: their work draws from very abstract, specialized knowledge; they perform the work with a high degree of autonomy and independence; and their behaviors are deeply rooted in powerful professional norms and codes of ethics that define appropriate behavior (Abbott 1983; Anteby et al. 2015; Freidson 1988).

According to the ecological view of professions (Abbott 1988), professions exist in an interdependent system of jurisdictions, where each jurisdiction represents the link between professions and their technical work. Jurisdictional claims to tasks are generally understood to have three components: claims to diagnose and classify the problem; claims to reason and infer about the problem, linking abstract professional knowledge to the client’s specific problem; and claims to determine the appropriate treatment based on that inference. In claiming a jurisdiction, professions claim a monopoly over the tasks within the jurisdiction, rights to control the training and licensing of its members and rights to administer its own discipline. For professions, the power to control their technical work is central (Freidson 1988; Larson 1977).

But these jurisdictions—professions, the tasks and the links between them—are constantly changing. These changes or system disruptions can be generated in multiple ways. They can be initiated from within a profession if, for example, a profession discards a task it no longer desires, thereby leaving it open for other professions to absorb into their jurisdictions. Similarly, these types of disruptions can also occur if one profession attempts to annex tasks that had previously been part of another profession’s jurisdiction. Disruptions can also be generated externally through, for example, regulatory changes,
technological shifts or broader social forces that serve to dislodge tasks from their existing owners (Barley 1986; Barrett et al. 2012), create new tasks (Kellogg 2014) or eliminate tasks from the landscape of professional work altogether (as was the case for the railroad professions (Abbott 1988)).

Jurisdictional claims can be made in multiple arenas including in the public, through legal systems and also in the workplace (Abbott 1988). Within the workplace, professionals contest and enact the boundaries between themselves and other professions in their daily work by staking claim over the tasks within their jurisdiction. For example, Bechky (2003) shows how jurisdictional boundaries within an organization can be enacted through the use of organizational artifacts such as engineering drawings and machines that mediate the relations between different groups. As a result, the institutionalized division of profession labor may get adapted over time and replaced with an intraorganizational one in which professionals take on some additional tasks and give up others. In most cases, these changes are attributed to the actions of the professionals within the organization; the workplaces of professionals are considered to be merely the setting where jurisdictional disputes between professions take place (Abbott 1988; Kellogg 2014).

4.2.2 Professionals In and Around Organizations

With professional work increasingly occurring within larger, more diverse types of organizations, scholars have emphasized the importance of understanding whether and how organizations influence professional work (Barley and Tolbert 1991; Dukerich et al. 2002; Wallace 1995). One prominent stream of research has tended to focus on the professionals, exploring whether their being employed within bureaucratic organizations would constrain their autonomy—their control over their technical tasks—and limit their ability to deliver valuable services to their clients (Engel 1970; Freidson 1984; Hall 1968; Sorensen and Sorensen 1974). More recent research has shown that professionals’ autonomy may be constrained by features of their employment relation (Mazmanian et al. 2013; Michel 2011) but that increased bureaucracy can also enable more flexibility and independence among professionals (Briscoe
This focus on the organization’s effect on professionals has yielded important insights, but it only explores one side of the relationship: the effect of the organization on the individual professional.

However, the presence of professionals in the workplace can also have important consequences for the organization. The characteristics of professionals can make them particularly challenging to manage (Coff 1997; von Nordenflycht 2010). Their highly specialized, abstract and uncertain work relies heavily on the individual professional’s judgement and discretion for its execution (Freidson 1970) which can make it very difficult for the non-professionals in the organization (i.e., non-professional managers or peers) to understand or evaluate the professional’s work (Alvesson 2001; Sharma 1997). This can undermine the manager’s legitimacy. To complicate matters further, many of the organization’s traditional mechanisms of control or influence – such as monitoring, incentives or the use of formal authority – tend to lack efficacy on professionals (Alvesson and Kärreman 2004; Greenwood and Empson 2003; Sharma 1997). Professionals also have considerable power in the organization since their specialized transferrable skills often provide them with strong outside options plus their superior social status makes them relatively immune to direction or supervision.

These complexities can be heightened during times of organizational change, especially if the organization tries to implement new processes and practices that run counter to professional norms (Tolbert and Stern 1991) or affect the professional’s technical work (Huising 2014). When directed to change, professionals may identify so strongly with their profession, its norms and its culture that they ignore the organization’s demands entirely (Kellogg 2009), or they actively resist organizational interference (Hoff and McCaffrey 1996). This is particularly true if the changes are perceived as an attempt by the organization to wrangle control over expert work (Hafferty and Light 1995; Leicht and Fennell 1997). At the same time, professionals may resist due to a genuine interest in protecting their clients, or use the defense of clients’ interests as rhetoric to protect their power.

An organization’s attempts to codify professional knowledge, standardize professional work, or shift tasks away from professionals to less expensive (and differently skilled) types of workers all represent clear threats to the power of the professions. Some scholars have declared that the magnitude of
these threats to professions’ power—the trends of deprofessionalization and the “proletarianization” of professional work—have been overstated (Freidson 1984, 1988). However, efficiency logics are a powerful force within organizations that propel organizations to find the “best way” (Brivot 2011) and then attempt to enforce professionals’ adherence to it. In this way, an organization’s influence over its professionals extends beyond simply acting as a backdrop for jurisdictional disputes between professions: organizations are actively participating in shaping the division of expert labor within their organization, and perhaps even more broadly (Galperin 2014; Huising 2014).

While we know that threats to professionals’ control over tasks within their jurisdiction are fiercely rebuffed, not all organizational changes are attempts to restructure the links between professions and their technical work. Organizations may seek to improve performance by redesigning processes and practices along other dimensions outside of a profession’s jurisdiction of technical tasks (Tolbert and Stern 1991), in more tangential or processual domains. Although these types of changes leave the professionals’ technical work largely untouched, they represent important approaches for improving organizational performance. Below, I examine how one highly professionalized organization attempted to implement changes to its internal processes and practices and explore how the presence of professionals shaped both the change process and its outcomes. I find that even for changes as benign as, for example, adding a 15-minute meeting to the start of the day, the organization struggled to implement the change within its highly professionalized workforce.

4.3 Setting and Methods

This paper draws on ethnographic data collected during the implementation of change at a highly professionalized organization. Using an inductive approach, I analyzed a longitudinal dataset comprising both observations and interviews, as well as archival data, to explore how five different outpatient clinics within in one hospital attempted to engage professionals in a centrally-mandated organizational change.
4.3.1 The Setting

The setting for this study was HealthHub hospital (a pseudonym), which was a world-class teaching hospital in Canada that provided healthcare services across multiple different settings including inpatient units, surgical suites, an emergency department and outpatient clinics. This was an ideal setting in which to study the challenges of change in professionalized contexts since its workforce was dominated by physicians (one of the most powerful professions) and it was in the midst of implementing a set of changes to its internal processes and practices. Furthermore, these changes did not affect the technical work of the physicians, but were instead focused on improving processes within HealthHub and on building a culture of continuous improvement. As noted, I focus on one type of professional—the physician—since they are the dominant profession in healthcare (Freidson 1970) and have all the characteristics that can complicate organizational change.

At the time of my study, HealthHub was in the process of implementing a “Management Improvement and Innovation System” (MIIS) across the organization. As highlighted in the HealthHub Annual Report, this initiative was a strategic priority for the hospital:

“Our new [Management Improvement and Innovation System] is a model for staff engagement. A management system that engages all frontline staff, it includes [new tools and practices] to improve problem solving, empower staff, and better manage the tasks of the day. The outcomes from [the MIIS] improve the patient experience and help [HealthHub] meet its strategic objectives – hitting performance targets, being innovative, leading in world-class quality and creating a culture of service excellence” (HealthHub Annual Report)

The program was initially introduced with the help of external consultants and was adapted from a model designed by a leading hospital system in the United States. The system was based on the principles of lean manufacturing which formed the foundation of Toyota’s legendary production system. In recent years, lean management principles had spread rapidly throughout healthcare systems around the world.

Like many hospitals, HealthHub had mixed results from their past experiences with lean management: some projects’ results would appear to be impressive but could not be sustained. With the Management Improvement and Innovation System, HealthHub took a different approach. The purpose of
this system was to create a backbone for continuous improvement and innovation in the organization. Rather than one-off projects, this system was about enabling the “frontline staff” (i.e., those that interact with patients) to drive their own problem solving and to innovate locally, within their clinics, to solve their own problems. The program included a series of linked tools and practices across four domains: (1) daily planning and operations; (2) continuous improvement and innovation; (3) targets and performance measurement; and (4) sustainability. Although the particular changes were small—requiring, for example, instituting a new 15-minute meeting at the start of clinic—senior informants within the organization suggested that the impact would be significant. Their hope was that the MIIS would transform the culture within HealthHub.

The implementation of the MIIS was led by the director of the performance improvement group and two of the group’s managers. Members of this group tended to be non-clinical with experience as consultants or performance improvement experts. HealthHub had first implemented the MIIS across its inpatient units (which were areas in the hospital where patients were admitted to stay overnight, often for many days). The inpatient rollout had taken two years, during which the templates for the MIIS tools and practices had been formalized. When I started my fieldwork, HealthHub was completing its last wave of inpatient units and was beginning to design the rollout of the MIIS to their outpatient clinics (which were areas in the hospital where patients went to see a doctor, usually for pre-scheduled appointments during the day). When designing the outpatient implementation of the MIIS, the performance improvement group planned to use the same MIIS tools and practices that had been developed for the inpatient units.

HealthHub’s outpatient clinics, however, had complicated organizational structures and operations which affected their ability to implement the MIIS tools and practices. First, HealthHub’s organizational structure, like that of most hospitals in Canada, had two separate internal hierarchies: the physician hierarchy and the hospital hierarchy. Individuals from both hierarchies came together to deliver care to patients within the outpatient clinics. As part of their clinical responsibilities within

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9 Refer to Chapter 3 for a detailed explanation of HealthHub’s organizational structure.
HealthHub, physicians came to the outpatient clinics to see their patients according to a preset clinic schedule. From the hospital hierarchy, each of the outpatient clinics had a manager who was responsible for most of the non-physician staff in the clinic such as nurses and administrative staff (e.g., flow coordinators, coordinators, and clerks); the manager did not oversee the physicians who worked in the clinic. However, because the outpatient clinic managers were each responsible for managing multiple clinics, they were not involved in the day-to-day operations of the clinic. Rather, the outpatient clinics were considered to be “physician led,” meaning that the practices and operations of the clinics were often tailored to the idiosyncratic preferences of each physician. Although the non-physician staff reported to the clinic manager, they worked most closely with the physicians and often adapted their practices to suit the physician’s preferences. Physicians had a particularly high degree of autonomy within the outpatient setting (compared to other areas in the hospital), which led one physician informant to describe the outpatient clinics as the “wild west” of the hospital. A taxonomy of the roles within HealthHub is outlined in Table 4.1. Despite this complexity, it was the managers who were tasked with implementing the MIIS on their outpatient clinics which was challenging given the managers’ lack of formal authority over the physicians and the physicians’ centrality within the clinics.

Second, the schedules and operations of each clinic were complex; even informants working within the outpatient clinics had difficulty explaining how the clinics were structured. Each clinic had multiple sub-clinics which reflected different patient types (i.e., different diseases or disorders within the same bodily system). There was often one general sub-clinic and then multiple specialty sub-clinics geared towards patients of a particular specialty. Furthermore, each of these sub-clinics could occur multiple times each week, which I refer to as sub-clinic instances. A sample outpatient clinic structure and its associated terminology is shown in Figure 4.1. Within this structure, physicians, nurses and other non-physician clinicians would only participate in a subset of the sub-clinic instances and would be physically present in the clinic only during those times. As a result, all the members of a clinic were rarely in the clinic at the same time which complicated the implementation of the MIIS tools and practices.
Table 4.1 - Taxonomy of Roles within HealthHub

<table>
<thead>
<tr>
<th>Organizational Hierarchy</th>
<th>Role Category</th>
<th>Role</th>
<th>Role Description</th>
<th>“Clinical” Staff</th>
<th>“Frontline” Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physician Hierarchy</td>
<td>Physician leadership</td>
<td>Division chief</td>
<td>Oversaw the physicians within the division; diagnosed and treated patients</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Director of the outpatient clinic</td>
<td>Oversaw the outpatient clinic from the physician perspective; diagnosed and treated patients</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Physicians</td>
<td>Physicains</td>
<td>Diagnosed and treated patients</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Learners</td>
<td>Fellows / Residents</td>
<td>Diagnosed and treated patients under the supervision of physicians</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Hospital Hierarchy</td>
<td>Non-physician clinicians</td>
<td>Nurses</td>
<td>Provided patient care (according to physicians’ orders)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Charge nurses</td>
<td>Oversaw the clinical work and day-to-day operations on inpatient units; provided patient care</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nurse practitioners</td>
<td>Provided patient care (independent of physicians)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Allied health</td>
<td>Provided supplementary patient care (e.g., social workers, dieticians, occupational therapists, physical therapists)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Students</td>
<td>Students (in nursing or allied health)</td>
<td>Provided patient care (under supervision)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Administrative staff</td>
<td></td>
<td>Flow coordinators</td>
<td>Managed the day-to-day operations of the clinic</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clerks/ coordinators</td>
<td>Performed administrative functions within clinic (e.g., booked patients, answered phones, etc.)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Central support staff</td>
<td>Quality leader</td>
<td></td>
<td>Provided quality support to unit/clinic teams (ensured processes were followed, managed quality issues, and helped with quality improvement projects)</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Performance improvement coach</td>
<td></td>
<td>Managed the rollout of the MIIS; supported improvement work across the hospital</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Management</td>
<td>Executives (CEO, VPs, Directors)</td>
<td></td>
<td>Managed the performance of their portfolio</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Managers</td>
<td></td>
<td>Managed their units or clinics with respect to budget, staffing and performance</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Chapter 4: Negotiating Change in Professional Contexts
4.3.2 The Outpatient Clinics at HealthHub

I studied the implementation of the MIIS tools and practices on five focal outpatient clinics: Head Clinic, Limb Clinic, Body Clinic, Social Clinic, and Complex Clinic. These clinics were the first five outpatient clinics to implement the MIIS and they were quite heterogeneous in both structure and operations. This heterogeneity is evident in the brief descriptions below and in Table 4.2 which outlines some of the clinics’ characteristics.

Head Clinic was a high-volume surgical clinic with only two main sub-clinics. Each day, each sub-clinic had one staff physician with a team of residents and fellows delivering the care (though the staff physician changed each day). The clinic also had two flow coordinators who, due to their clinical background, were able to take on much of day-to-day management of the clinic and its non-physician staff.

Limb Clinic was also a high-volume surgical clinic, but its structure differed from that of Head Clinic. Limb Clinic had 10 staff physicians running 22 sub-clinic instances per week and they often have many sub-clinics running at the same time in the same space. Limb clinic had many operational challenges. It regularly had over 100 patients scheduled in a day and tended to run many hours behind schedule almost every day. Limb clinic has a non-clinical flow coordinator whose job was to put patients in rooms.
### Table 4.2 - Outpatient Clinic Characteristics

<table>
<thead>
<tr>
<th>Clinic Operations</th>
<th>Head Clinic</th>
<th>Limb Clinic</th>
<th>Body Clinic</th>
<th>Complex Clinic</th>
<th>Social Clinic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinic type</td>
<td>Surgical</td>
<td>Surgical</td>
<td>Medical</td>
<td>Medical</td>
<td>Medical</td>
</tr>
<tr>
<td>Patient volumes</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Sub-clinics instances per week</td>
<td>10</td>
<td>22</td>
<td>24</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Number of sub-clinics co-occurring</td>
<td>2</td>
<td>3-5</td>
<td>2-6</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Clinic Staff</th>
<th>Head Clinic</th>
<th>Limb Clinic</th>
<th>Body Clinic</th>
<th>Complex Clinic</th>
<th>Social Clinic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff physicians (#)</td>
<td>4</td>
<td>10</td>
<td>12</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Part-time physicians (#)</td>
<td>10-15</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Residents &amp; fellows</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Nurse practitioners</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Nurses</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other non-physician clinicians</td>
<td>&gt; 10</td>
<td>7</td>
<td>2-5</td>
<td>5-10</td>
<td>5-10</td>
</tr>
<tr>
<td>Flow coordinator</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Other Admin Staff</td>
<td>&gt; 10</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Body Clinic was a medium-volume medical clinic; its patients required non-surgical treatment of predominantly chronic illnesses. Although it was not a surgical clinic, Body Clinic’s structure was similar to that of Limb Clinic: in any given week, there were 12 staff physicians presiding over 24 different sub-clinic instances, often with 2 to 6 running at the same time in the same physical space. The clinic employed a non-clinical flow coordinator who helped ensure the clinic operated smoothly, though the flow coordinator’s particular duties were shaped by the preferences of the physicians who were in the clinic on that day.

Complex and Social Clinics were small specialty medical clinics. Complex Clinic was an obesity management program that admitted patients in groups and then took them through a pre-set program lasting approximately 2 years. Throughout the program, they were treated by a multi-disciplinary team of clinicians. Most of the people working in Complex Clinic did so part time. Social Clinic was also unique in its operation. It was a medical clinic for victims of abuse. Similar to Complex Clinic, patients in Social Clinic got treated by a multi-disciplinary team which was tailored to the patients’ specific situations and needs. Social clinic had very low number of patients (2-5 patients per day) that tended to arrive with little warning. Each of these clinics had a non-clinical flow coordinator.

Studying the implementation of five clinics within one organization enabled me to hold constant the hospital-level factors that could influence change. In addition, Body, Social and Complex Clinics had the same manager which helped control for concerns that differences in change processes or outcomes were simply a reflection of the quality of management. To that end, all five clinics had the same director and quality leader and each clinic was coached through the same change process by the same performance improvement manager. Additional details on each clinic are provided in Chapter 3.

4.3.3 Data Collection
The use of ethnographic data collection enabled me to track the implementation of the MIIS in real-time across the five focal outpatient clinics. These five outpatient clinics were the first outpatient clinics to
adopt the MIIS tools and practices. The implementation in these five clinics happened in two waves, where each wave lasted four months. I followed the change processes in these clinics from before they started training (to develop a baseline understanding of the clinics’ operations) through to the end of their formal training four months later, and also for four to eight months after the formal implementation period ended. By combining observations and interviews throughout the change processes in these clinics, I was able to see what was actually happening in the clinics and then probe informants about their interpretations of what was going on. I was also able to view the process from multiple perspectives since I was granted access to many different levels within the organization, from the frontline staff to the executive. As a result, I could observe interactions across different types individuals, which is critical for understanding change processes (Nigam et al. 2016).

Table 4.3 - Summary of Interviews

<table>
<thead>
<tr>
<th></th>
<th>Central Clinic</th>
<th>Head Clinic</th>
<th>Limb Clinic</th>
<th>Body Clinic</th>
<th>Complex Clinic</th>
<th>Social Clinic</th>
<th>Other Areas</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Performance Improvement Coach</td>
<td>13</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>13</td>
</tr>
<tr>
<td>Quality Leader</td>
<td>9</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Manager</td>
<td>-</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>*</td>
<td>*</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Physicians</td>
<td>-</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Non-Physician Clinicians</td>
<td>-</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Administrative Staff</td>
<td>-</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>6</td>
<td>6</td>
<td>15</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>65</td>
</tr>
</tbody>
</table>

Note: Body, Complex and Social clinics have the same manager. Interviews with this manager are shown under the Body column only to avoid triple-counting (denoted by a *). "-" indicates role does not exist.

I did a total of 65 interviews (of which 46 were recorded and transcribed) (see Table 4.3). The average length of the recorded interviews was 1 hour. I interviewed frontline staff from all five outpatient clinics (as well as some inpatient areas), the performance improvement group, quality, and the executive.
I connected with people in each clinic across a variety of roles (e.g., physicians, nurses, flow coordinators, etc.). The interviews were all semi-structured. When I first interviewed an informant, I would spend time understanding the informant’s role, their career history, and characteristics of the clinic in which they worked. For interviews before the MIIS implementation began, I would probe about what (if anything) the informant knew about the MIIS. Once the implementation was underway, I would ask the informant about the particular tools and practices that they were implementing. I focused my inquiry on what they were doing, what was working or not working with the practice, and what the plans were for the future. Although I had a plan for each interview and a detailed set of questions, I would often pick up on issues raised by the informant and shift the discussion to probe on those points more deeply.

In addition to the interviews, I spent over twelve months observing many aspects of the change implementation: I attended the MIIS training sessions; I observed the clinics as they piloted the new tools and practices; I shadowed staff to understand their work environments; I participated in the weekly progress meetings with the managers, quality leaders and performance improvement coaches where they discussed the merits and challenges of the MIIS and were held accountable for their clinic’s progress; and I attended the executive steering committee meetings where broader strategic questions about the program and its implementation were discussed. In addition, I did preliminary fieldwork (described in Chapter 3), to understand both the MIIS tools and practices and their implementation on the inpatient units. The preliminary interviews and observations provided a foundation from which I could understand more fully the MIIS implementation in the outpatient clinics. Given the sensitive nature of the work I was observing, I did not interact with patients and did not follow the physicians and non-physician clinicians into the treatment rooms when they were seeing patients. These interviews and observations took place from early 2014 through to mid-2015. In addition, I had access to archival data pertaining to the hospital, the clinics and the previous rollout of the MIIS on the inpatient areas.

While shadowing frontline staff, I would spend time with the staff member, following them around the clinics as they did their work. During these observations, I would ask many questions about the clinic structure and operations and try to get a sense for the culture of the clinic. I would ask questions
about the challenges facing the clinic, and what had been done in the past to try to improve the clinic’s performance. I would also ask about the division between the physicians and the other staff within the clinic and whether or how that affected the work on the clinic. When the person I was shadowing was busy with a patient, I would spend time in the main clinic “hub” (i.e., the central office areas where the clinicians’ computers and supplies were). In the hub, I could listen to the conversations that were taking place around me and develop a good sense of the clinic environment. Throughout these observations, I would write field notes and, in some cases, leave the clinic briefly to voice record memos of particularly salient interactions or learnings.

Throughout my time in the field I captured data either directly on my computer or by writing in my notebook. In many instances, like during the weekly progress meetings, training sessions and executive steering committee meetings, I was able to sit with my laptop and capture, almost verbatim, the dialogue between participants. In situations where I was unable to type notes on my laptop, I wrote in a notebook and typed up the notes as soon as possible within 48 hours. When leaving the field for the day, I often wrote or voice-recorded memos to highlight questions I had or to document emerging themes or points of interests.

My analytical approach was inductive and open ended, driven by a general interest in how organizations implement change when they have professionals in the workforce, whose interests and goals may not align with those of the organization. My approach to coding and analyzing the data will be discussed in more detail below.

4.3.4 Implementing the MIIS Daily Prep Meeting

I examine how the five outpatient clinics at HealthHub attempted to implement one of the central practices in the MIIS: the Daily Prep Meeting. I focus on this one practice for two reasons. First, of all the MIIS practices, physician participation was most crucial for the Daily Prep Meeting. Failing to engage the physicians in this practice would limit its potential impact since the physicians had the biggest influence
on the clinics’ operations (which is described in more detail below). Second, the scope of this change was small: it was a 15-minute meeting added on to the start of the physician’s clinic and did not have anything to do with how the physicians treated their patients—their technical tasks. As a result, the Daily Prep Meeting was a minor change to the clinic operations, but it was one where physician participation was vital. This makes it an ideal setting for studying the implementation of these small changes within a highly professionalized organization.

The Daily Prep Meeting was 15-minute morning meeting in which the clinic team members met to “proactively plan” their days. On the inpatient units, the meeting was between the manager and the charge nurse (who was a senior nurse responsible for the day-to-day operations on inpatient units). In addition to planning their day, the goals of the meeting were to help staff learn and “understand the business” and to “develop leaders” within the organization. This conversation was guided by a new MIIS tool, the Daily Prep Sheet, which was a double-sided sheet of paper that listed 10-20 questions that the manager asked the charge nurse during the Daily Prep Meeting. Each question was aligned with one of the hospital’s strategic priorities (e.g., providing excellent care or safety). The questions were open-ended in order to stimulate discussion and managers used this as a venue to coach their charge nurses and develop their skills to handle the types of complications that often arose throughout the day on the units. Both the manager and the charge nurse brought a copy of the sheet and took notes as required.

In the training sessions for the outpatient clinics, the performance improvement coach provided the clinic teams with a template for how to implement the Daily Prep Meeting. The template detailed all aspects of the new practice: who should participate in the meeting; when, where and for how long the meeting should take place; what should be discussed; and what tools should be used to support the practice. During the training, clinic teams were given examples of the Prep Sheet tool, shown videos of the Daily Prep Meeting practice as it took place on inpatient units and also went in small groups to see the Daily Prep Meetings taking place in real time on an inpatient unit. Clinic teams were then asked to develop their own Prep Sheets with questions relevant to their own clinics and to start practicing the Daily Prep Meeting immediately.
During these training sessions, members of the outpatient clinic teams pointed out that the Daily Prep Meeting model did not fit easily into their clinic. One of the main challenges in translating the inpatient design to fit the outpatient clinic environment was determining who should be involved. At its core, the Daily Prep Meeting was about ensuring that people in the clinic knew what challenges were likely to arise throughout the day, had a plan for dealing with the challenges, and had the ability to actually make the required changes to how the clinic operated. On the inpatient units, these goals could be achieved by having the manager and the charge nurse meet since the charge nurse had the knowledge and influence required for the practice. However, this was not the case in the outpatient clinics.

In the outpatient clinics, the clinic managers split their time between many different clinics and so had very little involvement in each clinic’s day-to-day operations. With this structure, having a manager attend, for example, six Daily Prep Meetings each day (one for each of their clinics) was infeasible. Furthermore, the outpatient clinics did not have a single person—like the charge nurse—whose job it was to oversee the clinic throughout the day. Although some clinics had flow coordinators (who did oversee the clinic’s flow), these individuals were predominantly non-clinical and so had limited ability to direct the activities of others in the clinic. As a result, no single person in the clinic had the information required to answer the types of questions on the Prep Sheet and no single person had the authority to use the information from the Daily Prep Meeting to influence the day’s operations. Given these differences, the clinic teams and the performance improvement coach recognized that in order to implement this type of practice, they would have to expand participation in the meeting to include the broader clinic team including nurses, administrative staff, other non-physician clinicians, and most importantly, physicians.

Involving the physicians in the Daily Prep Meeting was essential for two reasons. First, the physicians had unique knowledge of the potential issues that could arise throughout the day. For example, they had knowledge about idiosyncratic patient needs (e.g., they knew which patients tended to take more time than allocated, whether there were patients that had unpredictable needs, or if patients needed to also see other health care providers). They also had important information about other flow interrupters – like if they had to leave clinic during the middle to go to a meeting. Second, physicians had the largest
influence on clinic flow and were often the rate-limiting resource in the clinic. For example, if they took longer than planned with a patient in the morning or if they decided to dictate or teach between patients, it could affect the clinic operations for the whole day. Given this central role, they had a great deal of power and influence over how the clinic ran. Physician participation was therefore important for the success of the Daily Prep Meeting.

However, based on HealthHub’s inpatient rollout of the MIIS, the performance improvement group knew that engaging the physicians would be challenging. One outpatient manager described the challenge of implementing change, particularly in the outpatient clinic environment:

“Within the [outpatient] setting… [the physicians] sort of felt the sense of ownership in terms of the clinical operations. Which I think makes it a little tougher for management in implementing change, as well as in promoting adoption of whatever changes in policy and practice that you're trying to put forth. Because in the inpatient unit, if you are going to implement change you will just say it and then [the nurses] will go, ‘Okay, we will do it.’ But this one? I don't know. But you know, I think it’s historical as well. I think before, the [outpatient] piece was sort of owned by the physician. They function like a private practice.” (Manager, AD12)

The clinic managers could use their position within the hospital hierarchy and the authority that position conferred to ensure their non-physician staff participated in the Daily Prep Meeting. For example, as all five of the clinics started piloting the Daily Prep Meeting, the clinic managers regularly attended to ensure their staff participated appropriately and to emphasize the importance of the new MIIS tools and practices. The managers also discussed that they would incorporate a staff member’s involvement in the MIIS into their annual reviews. But, these were not useful approaches to encourage physician engagement. While the clinic managers controlled many aspects of the clinic (such as the clinic budget, the administrative staff, the nursing staff and the physical space), they could not direct the physicians’ activities since they had no formal authority over the physicians that worked in their clinics. As the clinic teams negotiated the implementation of the Daily Prep Meeting, determining who should be involved and getting those individuals—and particularly, the physicians—to participate was a source of ongoing difficulty.
As the clinic teams designed their models for the Daily Prep Meeting, they realized that deciding who would be involved was not the only challenge. The teams also struggled to design the other aspects of the practice such as when it would take place, what they would discuss in the meeting, how they would run the meeting, and what their tools (like the Prep Sheet) would look like.

As my time in the field progressed, I noticed that each clinic attempted multiple different models for how to perform the Daily Prep Meeting practice. There was a local adaptation process happening in all the clinics where the clinic teams took the centrally-designed tools and practices (which were developed for the inpatient units) and attempted to make them fit in their environment, sometimes over many iterations. Each clinic’s change trajectory is described in detail in Table 4.4 (Social Clinic), Table 4.5 (Limb Clinic), Table 4.6 (Body Clinic), Table 4.7 (Complex Clinic), and Table 4.8 (Head Clinic). These change trajectories describe each model of the Daily Prep Meeting that the clinics tried to implement. Some of the clinics (such as Head and Social Clinic) made a small number of minor adjustments to elements of their Daily Prep Meeting practice while other clinics (such as Body Clinic) iterated on their model many times, repeatedly making major changes to the practice.

For example, Social Clinic implemented the Daily Prep Meeting over five iterations (shown in Table 4.4). Through the adaptation process, the team tried different times and locations for the meeting and adjusted the tool they used, moving from the centrally-designed paper Prep Sheet, to a similar electronic sheet that they had up on a screen during the meeting for all the members to see. In contrast to these simple adjustments, the adaptation process in Body Clinic (outlined in Table 4.6) went through ten different models, each of which represented significant changes to their prior approaches. The Body Clinic team also tried different times for the meeting, but much of their adaptation was driven by the content of the meetings, what tools they used to support the meetings, and whether they should split the Daily Prep Meeting into multiple meetings with different purposes (i.e., have one weekly meeting between the manager and their direct reports, one meeting between the physician and the clinic team at the start of the meeting, and one meeting to preview the next week’s schedule). Note that in Body Clinic...
as well as the others, the different models that the clinics tried to implement varied in the extent to which they involved the physician in the new practices (as is illustrated on the right of the tables).

Throughout the adaptation process, the clinic team members regularly talked about what was working with a given Daily Prep Meeting model and what was not working. In these discussions, there were two common topics of conversation. First, the teams often debated whether and how to involve the clinic’s physicians in their Daily Prep Meetings. As the teams tried to engage the physicians, it was not clear why physicians were willing to engage in some situations, but not in others. Second, these discussions often revolved around whether the new practice (or set of practices) were valuable to the clinic and its team. These discussions of the value (or lack of value) generated by the practice acted as an engine that propelled the team to adjust their practices again and try a new model. In trying to explain the clinics’ change trajectories, there was no clear pattern related to the characteristics of the clinic, the characteristics of the physicians or the overall approach to change management.

Honing in on these questions of what was driving the clinics’ adaptation processes, the generation of value and the physicians’ engagement (or lack thereof) with the new practices, I coded the interview and observation data to identify: (1) clinic characteristics and how they affected the Daily Prep Meeting model; (2) discussion of how to implement the Daily Prep Meeting (in terms of timing, who attended, what tools to use and what it entailed); (3) the problems with the existing model they were testing that were raised by the team; (4) discussion regarding whether and how to involve the physicians; (5) how the value (or lack of value) of the Daily Prep Meeting was debated by the clinic teams; and (6) how the team’s articulation of value influenced the processes and outcomes of change. This allowed me to generate longitudinal accounts of change in each clinic, where I could see exactly how and why the clinics’ models changed over time.
Table 4.4 - Evolution of Daily Prep Meeting in Social Clinic

<table>
<thead>
<tr>
<th>Model</th>
<th>Components</th>
<th>Roles: Leader</th>
<th>Roles: Attends</th>
<th>Time</th>
<th>Content</th>
<th>Tool</th>
<th>Involve Physicians</th>
<th>Time Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Daily Prep Meeting</td>
<td>Flow Coordinator</td>
<td>All</td>
<td>Daily, 10:00am</td>
<td>Review patients and ask prep questions at end</td>
<td>Board with Clinic Logistics</td>
<td>YES</td>
<td>Oct, 2014</td>
</tr>
<tr>
<td>2</td>
<td>Daily Prep Meeting</td>
<td>Flow Coordinator</td>
<td>All</td>
<td>Daily, 9:00am</td>
<td>Review patients and ask prep questions at end</td>
<td><strong>Electronic Daily Prep Sheet</strong></td>
<td>YES</td>
<td>Oct, 2014</td>
</tr>
<tr>
<td>3</td>
<td>Daily Prep Meeting</td>
<td>Flow Coordinator</td>
<td>All</td>
<td>Daily, 9:30am</td>
<td>Review patients and ask prep questions at end</td>
<td>Electronic Daily Prep Sheet</td>
<td>YES</td>
<td>Nov, 2014</td>
</tr>
<tr>
<td>4</td>
<td>Daily Prep Meeting</td>
<td>Flow Coordinator</td>
<td>All</td>
<td>Daily, 10:00am</td>
<td>Review patients and ask prep questions at end</td>
<td>Electronic Daily Prep Sheet</td>
<td>YES</td>
<td>Nov, 2014</td>
</tr>
<tr>
<td>5</td>
<td>Daily Prep Meeting</td>
<td>Flow Coordinator</td>
<td>On call physician and all other frontline staff</td>
<td>Daily, 10:00am</td>
<td>Review patients and ask prep questions at end</td>
<td>Electronic Daily Prep Sheet</td>
<td>YES</td>
<td>Dec, 2014</td>
</tr>
</tbody>
</table>

Note: Bold text in dark boxes indicate the model had changes from the previous model. All models are for 15 minutes unless otherwise stated.
<table>
<thead>
<tr>
<th>Model</th>
<th>Components</th>
<th>Roles: Leader</th>
<th>Roles: Attends</th>
<th>Time</th>
<th>Content</th>
<th>Tool</th>
<th>Involve Physicians</th>
<th>Time Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Daily Prep Meeting</td>
<td>Manager, Flow</td>
<td>Clinic Team</td>
<td>M-Th, 8:15</td>
<td>- Run through list of patients</td>
<td>Logistics Board</td>
<td>YES</td>
<td>October, 2014</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Coordinator</td>
<td></td>
<td></td>
<td>- Review Logistics</td>
<td>Daily Prep Sheet</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Ask prep sheet questions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Daily Prep Meeting</td>
<td>Manager, Flow</td>
<td>Clinic Team</td>
<td>M-Th, 8:15</td>
<td>- Run through list of patients</td>
<td>Logistics Board</td>
<td>YES</td>
<td>October, 2014</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Coordinator</td>
<td></td>
<td></td>
<td>- Review Logistics</td>
<td>Daily Prep Sheet</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Ask prep sheet questions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Weekly Preview</strong></td>
<td><strong>Flow Coordinator</strong></td>
<td>Clinic Team</td>
<td>F, 12:00pm</td>
<td>- Review schedule for next week</td>
<td>Logistics Board</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Daily Prep Sheet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Daily Prep Meeting</td>
<td>Flow Coordinator</td>
<td>Clinic Team</td>
<td>M-Th, 10:15</td>
<td>- Review Logistics</td>
<td>Logistics Board</td>
<td>NO</td>
<td>November, 2014</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Ask status sheet questions</td>
<td>Daily Prep Sheet</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Weekly Preview</strong></td>
<td><strong>Flow Coordinator</strong></td>
<td>Admin Staff</td>
<td>F, 12:00pm</td>
<td>- Review schedule for next week</td>
<td>Logistics Board</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(without</td>
<td></td>
<td></td>
<td>Daily Prep Sheet</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>physicians)</td>
<td></td>
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</tr>
<tr>
<td>4</td>
<td>Daily Prep Meeting</td>
<td>Flow Coordinator</td>
<td>Clinic Team</td>
<td>M-Th, 10:15</td>
<td>- Review Logistics</td>
<td>Logistics Board</td>
<td>NO</td>
<td>March, 2015</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td>- Ask status sheet questions</td>
<td>Daily Prep Sheet</td>
<td></td>
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</tr>
<tr>
<td></td>
<td><strong>Weekly Preview</strong></td>
<td><strong>Flow Coordinator</strong></td>
<td>Admin Staff</td>
<td>F, 12:00pm</td>
<td>- Review schedule for next week</td>
<td>Logistics Board</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>(without</td>
<td></td>
<td></td>
<td>Daily Prep Sheet</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>physicians)</td>
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</tr>
<tr>
<td></td>
<td><strong>Physician</strong></td>
<td><strong>Schedule Review</strong></td>
<td>Admin Staff</td>
<td>M, W; ad</td>
<td>- Review physician-specific schedules</td>
<td>Physician</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>hoc, 5 min</td>
<td>- Adjust schedule according to</td>
<td>schedules</td>
<td></td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td>physician preferences</td>
<td></td>
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</tr>
<tr>
<td>5</td>
<td>Daily Prep Meeting</td>
<td>CANCELLED</td>
<td></td>
<td></td>
<td></td>
<td>Logistics Board</td>
<td>NO</td>
<td>May, 2015</td>
</tr>
<tr>
<td></td>
<td>Logistics Board</td>
<td>Flow Coordinator</td>
<td>n/a</td>
<td>Daily</td>
<td>- Board filled out by Flow Coordinator</td>
<td>Logistics Board</td>
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</tr>
<tr>
<td></td>
<td><strong>Weekly Preview</strong></td>
<td><strong>Flow Coordinator</strong></td>
<td>Admin Staff</td>
<td>F, 12:00pm</td>
<td>- Review schedule for next week</td>
<td>Logistics Board</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(without</td>
<td></td>
<td></td>
<td>Daily Prep Sheet</td>
<td></td>
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<tr>
<td></td>
<td></td>
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<td>physicians)</td>
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</tr>
<tr>
<td></td>
<td><strong>Physician</strong></td>
<td><strong>Schedule Review</strong></td>
<td>Admin Staff</td>
<td>M, W; ad</td>
<td>- Review physician-specific schedules</td>
<td>Physician</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>hoc, 5 min</td>
<td>- Adjust schedule according to</td>
<td>schedules</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>physician preferences</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Note: Bold text in dark boxes indicate the model had changes from the previous model. All models are for 15 minutes unless otherwise stated.
<table>
<thead>
<tr>
<th>Model</th>
<th>Components</th>
<th>Roles: Leader</th>
<th>Roles: Attends</th>
<th>Time</th>
<th>Content</th>
<th>Tool</th>
<th>Scope</th>
<th>Involve Prep.</th>
<th>Time Frame</th>
</tr>
</thead>
</table>
| 1     | Daily Prep Meeting | Physician, Mgr/FC | Clinic Team | Th, 8am | - Physician runs through patient list  
- Mgr/FC asks prep sheet questions at end | Patient lists Prep Sheet | Sub-clinic A | YES | May, 2014 |
| 2     | Daily Prep Meeting | Physician, Mgr/FC | Clinic Team | Th, 8am | - Physician runs through patient list  
- **Physician highlights interrupters**  
- Mgr/FC asks prep sheet questions at end | Patient lists Phys. Prompt Prep Sheet | Sub-clinic A | YES | June, 2014 |
| 3     | Daily Prep Meeting | Physician | Clinic Team | Th, 8am | - Physician runs through patient list  
- Physician highlights interrupters  
- **Mgr/FC asks prep sheet questions at end** | Patient lists Phys. Prompt Prep Sheet | Sub-clinic A | YES | June, 2014 |
| 4     | Daily Prep Meeting - Sub-clinic B | Manager Flow Coordinator (FC), Nurse | T, 8am | - Nurse runs through patient list  
- Nurse highlights interrupters  
- Mgr/FC asks prep sheet questions | Patient lists Phys. Prompt Prep Sheet | Sub-clinic B | NO |
| 5     | Daily Prep Meeting - Sub-clinic B | CANCELLED | | | | | |
| 6     | Prep Sheet Meeting | Manager Flow Coordinator (FC), Nurse | Th, 8:15am | - Mgr/FC asks prep sheet questions | Prep Sheet | Sub-clinic A | NO |
| 7     | Daily Prep Meeting – Sub-clinic B | Manager Flow Coordinator (FC), Nurse | T, 8am | - Nurse runs through patient list  
- Nurse highlights interrupters  
- Mgr/FC asks prep sheet questions | Patient lists Phys. Prompt Prep Sheet | Sub-clinic B | NO |
| 8     | Daily Prep Meeting | Physician | Clinic Team | Th, 8am | - Physician runs through patient list  
- **Physician highlights interrupters** | Patient lists Phys. Prompt Prep Sheet | Sub-clinic A | YES | July, 2014 |
| 9     | Prep Sheet Meeting | Flow Coordinator Nurse, Admin | Daily, 8am | - FC asks prep sheet questions | Prep Sheet | All | NO |
| 10    | Daily Prep Meeting – Sub-clinic B | CANCELLED | | | | | |
| 11    | Daily Prep Meeting | Physician | Clinic Team | Th, 8am | - Physician runs through patient list  

**Table 4.6 - Evolution of Daily Prep Meeting in Body Clinic**
<table>
<thead>
<tr>
<th>Model</th>
<th>Components</th>
<th>Roles: Leader</th>
<th>Roles: Attends</th>
<th>Time</th>
<th>Content</th>
<th>Tool</th>
<th>Scope</th>
<th>Involve Phys.</th>
<th>Time Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Daily Prep Meeting</td>
<td>Physician(s)</td>
<td>Clinic Team</td>
<td>4/week, start of clinic</td>
<td>- Physician runs through patient list</td>
<td>Patient lists</td>
<td>Sub-clinics</td>
<td>YES</td>
<td>Sept, 2014</td>
</tr>
<tr>
<td></td>
<td>Prep Sheet Meeting</td>
<td>CANCELLED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Daily Prep Meeting</td>
<td>Physician(s)</td>
<td>Clinic Team</td>
<td>4/week, clinic start</td>
<td>- Physician runs through patient list</td>
<td>Patient lists</td>
<td>Sub-clinics</td>
<td>YES</td>
<td>Sept, 2014</td>
</tr>
<tr>
<td></td>
<td>Pre-Clinic Meeting</td>
<td>Nurse</td>
<td>Physician</td>
<td>Ad hoc (in advance of clinic)</td>
<td>- Discuss patient list in upcoming clinic and adjust as required</td>
<td>none</td>
<td>All</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Manager Meeting</td>
<td>Manager</td>
<td>Flow Coordinator</td>
<td>Fridays, 12:30</td>
<td>- Review last week and look ahead</td>
<td>Manager Prep Sheet</td>
<td>All</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Daily Prep Meeting</td>
<td>Physician(s)</td>
<td>Clinic Team</td>
<td>1-3/week, start of clinic</td>
<td>- Physician runs through patient list</td>
<td>Patient lists</td>
<td>Sub-clinic A and others Ad Hoc</td>
<td>YES</td>
<td>Nov, 2014</td>
</tr>
<tr>
<td></td>
<td>Pre-Clinic Meeting</td>
<td>Nurse</td>
<td>(nurse and sometimes physician)</td>
<td>Ad hoc (in advance of clinic)</td>
<td>- Discuss patient list in upcoming clinic and adjust as required</td>
<td>none</td>
<td>Ad hoc</td>
<td>AD HOC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Manager Meeting</td>
<td>Manager</td>
<td>Nurses, Flow Coordinator, Admin</td>
<td>Wed, 8:30am</td>
<td>- Review last week and look ahead</td>
<td>Manager Prep Sheet</td>
<td>All</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Daily Prep Meeting</td>
<td>Physician(s)</td>
<td>Clinic Team</td>
<td>1-3/week, start of clinic</td>
<td>- Physician runs through patient list</td>
<td>Patient lists</td>
<td>Sub-clinic A and others Ad Hoc</td>
<td>YES</td>
<td>March, 2015</td>
</tr>
<tr>
<td></td>
<td>Pre-Clinic Meeting</td>
<td>Nurse</td>
<td>(may include physician, but usually just nurse)</td>
<td>Ad hoc (in advance of clinic)</td>
<td>- Discuss patient list in upcoming clinic and adjust as required</td>
<td>none</td>
<td>Ad hoc</td>
<td>AD HOC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Manager Meeting</td>
<td>Manager</td>
<td>Nurses, Flow Coordinator, Admin</td>
<td>Bi-Weekly, Wed, 8:30am</td>
<td>- Review last week and look ahead</td>
<td>Manager Prep Sheet</td>
<td>All</td>
<td>NO</td>
<td></td>
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</tbody>
</table>
Table 4.6 - Evolution of Daily Prep Meeting in Body Clinic (Continued, page 3 of 3)

<table>
<thead>
<tr>
<th>Model</th>
<th>Components</th>
<th>Roles: Leader</th>
<th>Roles: Attends</th>
<th>Time</th>
<th>Content</th>
<th>Tool</th>
<th>Scope</th>
<th>Involve Phys.</th>
<th>Time Frame</th>
</tr>
</thead>
</table>
| 10    | Clinic Prep Meeting | Physician(s) | Clinic Team | 1-3/week, start of clinic | - Physician runs through patient list  
- Physician highlights interrupters | Patient lists | Sub-clinic A and others | YES | May, 2015 |
|       | Pre-Clinic Meeting | Nurse | (may include physician, but usually just nurse) | Ad hoc (in advance of clinic) | - Discuss patient list in upcoming clinic and adjust as required | none | Ad hoc | AD HOC |           |
|       | Manager Meeting | Manager | Nurses, Flow Coordinator, Admin | Weekly, Wed, 8:30am | - Review last week and look ahead | Manager Prep Sheet | All | NO | |
### Table 4.7 - Evolution of Daily Prep Meeting in Complex Clinic

<table>
<thead>
<tr>
<th>Model</th>
<th>Components</th>
<th>Roles: Leader</th>
<th>Roles: Attends</th>
<th>Time</th>
<th>Content</th>
<th>Tool</th>
<th>Involve Physicians</th>
<th>Time Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Daily Prep Meeting</td>
<td>Physician</td>
<td>All</td>
<td>Thursday, 1 hour</td>
<td>Discuss patients</td>
<td>Clinic Schedule</td>
<td>YES</td>
<td>December, 2015</td>
</tr>
<tr>
<td></td>
<td>Daily Prep Meeting</td>
<td>Non-Physician Clinician</td>
<td>All</td>
<td>Thursday at start of team rounds, 15 minutes</td>
<td>Ask Prep Sheet questions to team</td>
<td>Daily Prep Sheet</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Daily Prep Meeting</td>
<td>Non-Physician Clinician</td>
<td>All</td>
<td>Friday, after clinic, 15 minutes</td>
<td>Ask Prep Sheet questions to team</td>
<td>Daily Debrief Sheet</td>
<td>YES</td>
<td></td>
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<tr>
<td>3</td>
<td>Daily Prep Meeting</td>
<td>CANCELLED</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>Daily Prep Meeting</td>
<td>CANCELLED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Bold text in dark boxes indicate the model had changes from the previous model. All models are for 15 minutes unless otherwise stated.
### Table 4.8 - Evolution of Daily Prep Meeting in Head Clinic

<table>
<thead>
<tr>
<th>Model</th>
<th>Components</th>
<th>Roles: Leader</th>
<th>Roles: Attends</th>
<th>Time</th>
<th>Practices</th>
<th>Tool</th>
<th>Involve Physicians</th>
<th>Time Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Daily Prep Meeting</td>
<td>Manager</td>
<td>Flow Coordinator</td>
<td>Daily, 3pm, 15 min</td>
<td>Ask Prep Sheet questions</td>
<td>Prep Sheet</td>
<td>NO</td>
<td>May, 2014</td>
</tr>
<tr>
<td>2</td>
<td>Daily Prep Meeting</td>
<td>Manager</td>
<td>Flow Coordinator</td>
<td>Ad Hoc in morning, 15 min</td>
<td>Ask Prep Sheet questions</td>
<td>Prep Sheet</td>
<td>NO</td>
<td>June, 2014</td>
</tr>
<tr>
<td>4</td>
<td>Daily Prep Meeting</td>
<td>Manager</td>
<td>Flow Coordinator</td>
<td>MWF, 9am, 15 min</td>
<td>Ask Prep Sheet questions</td>
<td>Prep Sheet</td>
<td>NO</td>
<td>September, 2014</td>
</tr>
<tr>
<td>5</td>
<td>Daily Prep Meeting</td>
<td>Manager</td>
<td>Flow Coordinator</td>
<td>2/wk, 9am, 15 minutes</td>
<td>Ask Prep Sheet questions</td>
<td>Prep Sheet</td>
<td>NO</td>
<td>April, 2015</td>
</tr>
<tr>
<td></td>
<td>Admin Update</td>
<td>Manager</td>
<td>10-15 Admin staff</td>
<td>M, 9am, 15 minutes</td>
<td>Ask Prep Sheet questions</td>
<td>Admin Prep Board</td>
<td>NO</td>
<td></td>
</tr>
</tbody>
</table>

Note: Bold text in dark boxes indicate the model had changes from the previous model. All models are for 15 minutes unless otherwise stated.
By examining each clinic’s trajectory of change and examining the ways in which they tried to engage physicians, patterns emerged which suggested that although the MIIS was seemingly unthreatening to the physicians’ technical work (i.e., they maintained their autonomy in how they diagnosed and treated patients), it did create infringements on the physician’s autonomy in other ways. As I show below, these infringements affected both the process and outcomes of change across all five units.

4.4 Findings

4.4.1 Challenge of Physician Engagement

Within the HealthHub executive, there was a strong appetite for implementing the MIIS. At the bi-monthly meetings of MIIS executive steering committee—the group that oversaw the MIIS implementation from a strategic level—I observed directors and VPs jockeying to have their units or clinics get priority in the rollout plans. HealthHub had seen positive results from the MIIS on its inpatient units (as described in Chapter 3) and the executives from other areas, like the director of the outpatient clinics, were eager to see similar benefits realized in their areas. However, the outpatient clinic’s ability to realize the same benefits was hampered by the challenges associated with engaging their physicians. In fact, the director of the performance improvement group described physician engagement as one of the largest risk factors for the outpatient rollout.

When implementing the Daily Prep Meeting on the inpatient units, the manager’s lack of authority over the physicians in the clinic was a significant hurdle in implementing change. In many instances, the clinics did not get their physicians to attend their Daily Prep meetings (as was the case for Head Clinic). In other clinics, they did get a small number of physicians to participate in the meetings, though these engaged physicians varied in their willingness to participate actively in the new practice. Throughout the implementation, I observed a few instances where managers or quality leaders (who supported the managers during the implementation) tried to correct or alter what the physicians did during the Daily Prep Meeting, but these interventions were not well received.
In one instance in Body Clinic, a physician was not following the standardized way of sharing the information that the team had developed. The team had developed a “physician prompt” (see Model 2 in Table 4.6) which listed four questions the physician should answer when they talked about their patients (e.g., does the patient need any tests, is the patient appropriate for residents, etc.). The quality leader interjected and encouraged the physician to just give a couple of details of the patient (rather than a full patient history) and directed the physician’s attention to the newly created physician prompt. The physician went on to finish discussing the patient, but did not answer one of the questions from the physician prompt. Before the physician started discussing the next patient, the quality leader interrupted and pointed to the prompt and asked the physician what testing was required for the previous patient. The physician responded that the patient just required routine testing. The physician was about to continue with the next patient but before doing so, turned back to the quality leader and said sharply that the question about testing was only relevant if there was something different or an unusual test was required. The quality leader apologized and remained quiet for the rest of the meeting. The physician went back to discussing the patients in a manner that was unchanged.

Even the physicians recognized that they tended to be separate and did not have to abide by the same rules as others in the clinic. When discussing one particularly disruptive physician, a physician (MD8) in Limb Clinic commented that the disruptive physician was, “… a valuable resource for the organization. He’s so valuable that we need to tickle his tummy a little bit.” When the manager asked if the physician could be made to participate in the Daily Prep Meeting, the physician laughed and said “No way. He’s a vapor trail.”

The solution to this physician engagement problem that was advocated by the performance improvement group was to find and use “physician champions.” Each clinic team therefore had one physician who participated—at least part of the time—on the clinic’s MIIS implementation team. These physicians were tasked with conveying the physicians’ point of views during the design of the Daily Prep Meeting as well as convincing their physician colleagues to adopt the new practices that were developed.
However, this strategy did not generate broad buy-in from the physician groups within the five focal clinics. One issue with this approach was that physicians’ peer relationships tended to be governed by norms of collegiality and respect; even physicians who were the chief of their division rarely used their formal authority over their colleagues. As one physician chief commented:

“I think I have considerable influence and I can say to [other physicians], ‘I'm afraid you're not doing that anymore for these reasons.’ I haven't really tested it as such because I haven't really needed to or wanted to.” (Physician, MD8)

Instead of pushing their colleagues to participate, one physician champion tried to lead by example, but would only go so far as to invite a couple of other physician colleagues to come to observe the sub-clinic doing the Daily Prep Meeting. Furthermore, one of the physician champions even took on an adversarial role during the piloting of the Daily Prep Meeting. In one clinic, after the team did their first Daily Prep Meeting with the large group, the physician champion publicly questioned the value of the whole practice by saying, “So now the meeting is done. And we have patients bottlenecking at registration!” The physician champions at HealthHub, while potentially useful allies, could not be relied on as a mechanism to engage the broader physician group. Even having a highly engaged physician champion who was willing to lead aspects of the MIIS practices, as was the case in Body Clinic, did not lead to widespread physician engagement within that clinic.

### 4.4.2 Dimensions of Physician Autonomy

The main source of complexity in engaging the physicians in change was that they maintained considerable autonomy over how they practiced medicine. While there were bounds to their autonomy (which are predominantly dictated by professional norms and codes of ethics), physicians were granted considerable leeway to act according to their own discretion across many dimensions of their work. The outpatient clinics, perhaps more than any other area in the hospital, tended to be provider-centric rather than patient- or organization-centric. One outpatient clinic manager described this challenge:

“I think the problem with the way [outpatient] has been set up has been that it was always initially set up to be provider focused. So we organized their clinics based on what the doctor desired and
wanted - so the day that he’s available, the type of staff he wanted… whereas we didn’t really think about it from the patient perspective. So if [the physician] wants to run clinic only once every month or once every three months, or he wants to now do this type of the clinic or that type of the clinic, or cancel here or cancel there. I think we’ve been very loose with that stuff. Rather than really building some parameters around what’s acceptable or not acceptable. So I think that’s been part of the problem.” (Manager, AD6)

What emerged from these data was that the concept of autonomy in physicians’ professional practices extended beyond the clinical realm (i.e., diagnosing and treating patients). Physicians maintained considerable autonomy in other aspects of their work. This broadening scope of physicians’ autonomies was evident in the significant practice variations that existed across physicians, even within the same clinic or sub-clinic. Given the dominance of the physicians in these settings, others in the clinic adapted to these variations.

Across the focal outpatient clinics, I found evidence of five dimensions of autonomy enacted by the physicians within the clinics. These dimensions became evident by talking to physicians, other frontline staff and managers about what practices tended to vary considerably across physicians. Nurses, in particular, often worked with multiple physicians and so they saw the variation first hand. These five dimensions of physician autonomy are described in Table 4.9 and are illustrated with quotes from my informants.

First, physicians maintained autonomy over the clinical treatment of their patients. This represented the technical work of the physicians as it drew from their training, specialized skills and knowledge. Physicians made the decisions about the patient’s diagnosis, what drugs to prescribe, what surgeries were required, what follow-up was appropriate and what other types of physicians or care providers needed to be involved in the patient’s care.

Whereas the first dimension reflected the technical work of the physicians, the remaining four dimensions of autonomy were processual. Along the second dimension, physicians had autonomy in deciding how they wanted to prepare for clinic. There was substantial variation in this, where some doctors would review each patient’s chart in detail while others would do no preparation whatsoever. Although some clinic staff said that the clinic ran more smoothly with physicians who had prepared, there...
was a general acceptance that physicians’ approaches to preparation were up to the individual physician to decide.

Third, physicians had autonomy in determining how they wanted their patients scheduled. Each physician had preferences regarding when their clinics would start, how many patients they saw in a clinic, how long the appointments would be scheduled for as well as whether they would allow their clinic to be overbooked with urgent add-ons. These physician preferences were codified in clinic “templates” which acted as guides for the administrative staff when they were booking patients. There was often significant variation across this dimension. Although this high level of variation was commonplace, one outpatient manager described its impact on the clinic operations and performance:

“In [the clinic], one doctor can see 60 patients in a day and the other struggles to get through 20 and is always running very late which negatively affects our ratings on patient satisfaction and can be really frustrating for the other clinic staff.” (Manager, AD6)

Fourth, the physicians had autonomy over how they wanted to utilize the clinic’s resources like, for example, nursing or administrative staff support. The physician decided what types of activities they wanted their nurse to do (within the nurse’s formal scope of practice) and how they wanted to coordinate with the nurse. One nurse who was new to the clinic commented on this variation:

“It's amazing how I go to one nurse and she'll be like, ‘Oh, my doc does it like this.’ But I go to the next nurse and she says, ‘Oh, my doc does it like this.’ And it's not the same, you know? … [Physicians] have their own little clinic and they do it the way they do it, and it’s not the same across the board.” (Nurse, RN4)

Similarly, the physicians also decided what tasks the flow coordinator would be responsible for during the physician’s sub-clinic. In some sub-clinics, the flow coordinator only put patients into rooms while in others, the flow coordinator also took patients’ heights, weights and vital signs. Physicians also controlled how and when they wanted to communicate with the other frontline staff involved in their sub-clinics. The physicians also often dictated which rooms they used within the clinic. In this regard, the physicians acted like the quarterbacks of patient care, pulling on the resources available within the clinic and using these resources according to their preferences.

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### Table 4.9 – Dimensions of Physician Autonomy

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>How to treat patients</strong></td>
<td>Physicians are responsible for deciding how patients should be treated.</td>
<td>“If I just think about my two other colleagues in the [specialty] … I think our actual delivery of care is very similar. When we often consult each other about patients that we’re having difficulty with … I find almost invariably we agree on how to manage a patient. It’s always reassuring.” (Physician, MD7) “I think it’s also the way that they structure their care, right, what they do for people during clinic hours versus what they do for them after. It’s all very physician-dependent I believe … I mean they all have protocols they follow for different treatments and different diseases and stuff right. You know patient A has disease B and that they couldn’t get a certain type of medication and protocol and stuff. There are still variation between the ways the doctors practice for sure.” (Nurse, RN4) “I think there is a tacit understanding that you practice in the same modern way, in a standardized fashion in which there is some variability and range of acceptability. But if I were working in the clinic for instance, and the Chief happened to walk through and said, ‘I don’t like what you’re doing, but what you’re doing is reasonable?’ He can’t make you not do it. It’s your responsibility ultimately.” (Physician, MD9)</td>
</tr>
<tr>
<td><strong>How to prepare for clinic</strong></td>
<td>Physicians determine how they like to prepare for the clinic days (e.g., review charts, meet with nurse, etc.)</td>
<td>“I think from [the physician colleague’s] standpoint, he feels like his clinic goes better if he spends that hour [reviewing his patients before clinic]. … And I don’t… I’m a little bit more of a ‘just wing it’ kind of person, and I remember, and I can just go with it. I also have half the number of patients that he has because he does more clinic that I do. So I can remember more easily.” (Physician, MD7)</td>
</tr>
<tr>
<td><strong>How to schedule patients</strong></td>
<td>Physicians determine how many patients to see in a clinic, what types of patients to see and whether they allow overbooking clinics</td>
<td>“Physicians only want so many numbers and they don’t want to be overbooked, they want to be spaced or they want their clinic to be top-heavy.” (Administrative Staff, AD15) “In [clinic], one doctor can see 60 patients in a day and the other struggles to get through 20 and is always running very late which negatively affects their ratings on patient satisfaction and can be really frustrating for the other clinic staff.” (Manager, AD6)</td>
</tr>
<tr>
<td><strong>How to utilize clinic resources</strong></td>
<td>Physicians determine how the different resources in the clinic will be used in the care of the patient. Physicians influence the role of the nurse in caring for patients as well what types of support the flow coordinator can provide.</td>
<td>“Like [physicians] saying, ‘Oh, all of a sudden I’m opening up a clinic … next week.’ Or, ‘I’m going to pull my nurse and run this boutique clinic on [a separate unit].’ … That’s happened! ‘And I’m taking the nurse with me.’ And I’m like, ‘Really? Because she’s your nurse, you’ve decided.’” (Manager, AD6) “I do very similar things for each patient for each doctor in the clinics. But the way that we function and the relationship I have with each doctor, and the way we communicate or the way we get things done together is very different.” (Nurse, RN4) “I’m utilized by some doctors; and I’m not utilized by others. They’ll have me just do the height and weight and put them in a room and that’s it. Whereas, if I know that a patient is getting this, this, and this done, they’re doing 24 hour urine, they’re doing this; I can get everything ready so that it’s there. So when [the physician] goes in, they’re not hustling and looking around for things. Everything’s there, right?” (Administrative Staff, AD10)</td>
</tr>
<tr>
<td><strong>How to balance time across tasks</strong></td>
<td>Physicians determine how to split their time across tasks. (e.g., when to arrive at clinic, whether to leave during clinic, or whether to cancel clinic)</td>
<td>“The docs will often show up late. They have other commitments and like, ‘Well sorry, I was in a meeting.’ And they come late and it just sort of throws everything off.” (Nurse, RN5) “So for instance, for someone like [physician X], who has major demands on their time, I find that there’s a lot more coordination that kind of happens behind the scenes. And [the physician] kind of requires maybe more from me in that regard than maybe some of the other physicians. It’s not to say that they don’t manage their time appropriately or that they have more or less demands on their time. It’s just, I think, a difference in their practice and the way that they work, and what other things they have that they’re involved in.” (Nurse, RN4)</td>
</tr>
</tbody>
</table>
Finally, physicians were able to determine how they balanced their multiple competing commitments across the hospital. Physicians, as highly specialized human resources, performed many different types of tasks in many different areas of the hospital: seeing patients in the outpatient clinic, seeing patients on the inpatient units, performing surgeries or other procedures, doing research, providing consultations for other physicians’ patients, seeing patients in the emergency department, and teaching residents and fellows. These competing demands meant that physicians often arrived late to clinic, left in the middle of clinic, or cancelled clinic altogether. Although these physician-centric practices had repercussions on the clinics and clinic staff, this was an accepted dimension of physician autonomy.

Physicians in the hospital exercised their professional autonomy along these five dimensions. While they were held accountable for clinical errors (in the technical dimension) through formal quality mechanisms and committees, there were few controls for variations along these other processual dimensions of autonomy.

### 4.4.3 Infringements on Physician Autonomy during Change

The models for the Daily Prep Meeting developed by the outpatient clinic teams contained elements that infringed on the physicians’ autonomy across these dimensions. Although none of the new practices infringed on the physicians’ technical autonomy, other processual dimensions of autonomy were consistently under pressure. Examining the change processes in each clinic, with a specific focus on the models where the clinic team attempted to engage physicians, generated a better understanding of the infringements on autonomy caused by the Daily Prep Meeting. The specific infringements caused by the Daily Prep Meeting models are summarized in Table 4.10 and are described in detail below.
### Table 4.10 - Daily Prep Meeting’s Infringements on Physician Autonomy

<table>
<thead>
<tr>
<th>Clinic</th>
<th>Components of the Daily Prep Meeting</th>
<th>Designed to Include Physicians</th>
<th>Dimensions of Physician Autonomy</th>
<th>Part of Clinic’s Final Model?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>How to treat patients</td>
<td>How to prepare for clinic</td>
</tr>
<tr>
<td>Template</td>
<td>Answer Prep Sheet questions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social</td>
<td>Review patients with entire clinical team</td>
<td>YES</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Answer Prep Sheet questions</td>
<td>YES</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Limb</td>
<td>Review the patient list</td>
<td>YES</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Answer Prep Sheet questions</td>
<td>YES</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Provide overview of day’s logistics</td>
<td>YES</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Review clinic schedule for next week</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Review physician’s schedules to align with their preferences</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Provide logistics on whiteboard (no meeting)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Body</td>
<td>Review the patient list (by physicians)</td>
<td>YES</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Answer Prep Sheet questions (with full team)</td>
<td>YES</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Use a physician prompt to focus discussion</td>
<td>YES</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Review the patient list (by nurses)</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Provide overview of day’s logistics</td>
<td>YES</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Provide logistics on whiteboard (no meeting)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complex</td>
<td>Review patients with entire clinical team (existing practice)</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Answer Daily Prep questions (in rounds)</td>
<td>YES</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Answer Daily Debrief questions (after clinic)</td>
<td>YES</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Head</td>
<td>Answer Daily Prep questions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perform Admin Update</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: In this table a check mark indicates that the component of the Daily Prep Meeting infringed on that dimension of autonomy. The last column indicates whether the component existed in the last model I observed in the clinic during my fieldwork; “ad hoc” indicates that the component was part of the practice, but only some physicians participated and they did so in an ad hoc manner.
4.4.3.1 Social Clinic

The model designed by Social Clinic, described in Table 4.4 involved bringing the whole multi-disciplinary team together each morning to review the schedule for the day, discuss who should be seeing each patient and highlight any flow interrupters in the day. The model created infringements on the physician’s autonomy in three ways: (1) it standardized clinic preparation across physicians; (2) it dictated how the team coordinated the multi-disciplinary care for the patient; and (3) it required physicians to commit to being in the clinic at the same time every day, thus impacting their ability to independently manage how they balance time across tasks (as indicated by the check marks in Table 4.10). These infringements existed in all five of the Daily Prep Meeting models developed by Social Clinic.

The challenge for Social Clinic’s implementation was that the majority of the physicians and frontline staff worked in the clinic only part time and the patient visits were often unplanned. As a result, the team members were rarely all in the clinic at the same time every day. Furthermore, there was no clear start time for the clinic. The clinic team wanted to do the Daily Prep Meeting in the morning at the start of clinic, but when they picked times, it was too early for some of the team and too late for others. Debates over the best start time in Social Clinic went on for months, as is shown in the clinic’s change trajectory in Table 4.4.

Despite the logistical challenges and the infringements on physicians’ autonomies, Social Clinic adopted the Daily Prep Meeting with only minor adaptations from the original template. Compared to the original inpatient template, they increased attendance to include more of the clinic’s frontline staff and they adapted the Prep Sheet tool to be an electronic document that they had up on a screen during the meeting.

In this clinic, the driving force for adopting the new practice was a physician champion (who was also the director of the clinic). As one of the administrative staff members described, the physician saw value in the process from the beginning and made it clear that frontline staff were expected to attend and participate in the meeting:

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“We just really pushed it. The physician director said it was mandatory that everyone had to be there… Because we didn’t want to give the option like, if you’re busy or something [you don’t have to come]. Because then we didn’t feel like, especially at the beginning, that people would actually come and participate.” (Administrative Staff, AD14)

While the physician’s mandate created a strong start to the implementation, what sustained the team was the fact that the practice generated value in many different ways for the clinic. One of the administrative staff members said that at the beginning the two administrative staff members asked the group if they could please continue to participate because it provided a great deal of value to the them: “So when we kept saying, ‘It’s helpful to us. If it’s not helpful to you, it is helpful to us at least. So spend these 10 minutes with us in the morning and do it.’” Other non-physician clinicians also articulated the value generated by the practice:

“I actually think [the Daily Prep Meeting’s] been helpful. For instance, I had that case on Thursday and [the Daily Prep Meeting] is a more efficient way for me to tell—like, I didn't have to go to three different people's offices and tell the same [patient] history each time. So I was able to give the history and say, ‘I'm going to do this, but I might need caregiver support; I might need a medical evaluation.’ So everybody was there. Everybody heard it. Everybody was on alert, right? And even for [the admin staff], like our clerks and stuff, given the cases that we have, just for them to have a heads-up there are sometimes [patients] that are going to present with some behavioral things or [family members] that are not very happy … it's a more efficient use of my time to have that [Daily Prep Meeting]. And I think it allows for a little bit more predictability for the rest of the team to know about what's walking in the door that day. So I actually think they are good.” (Non-physician clinician, CL3)

The implementation in Social Clinic highlighted the impact of a having a strong mandate for change coming from a physician. It gave the clinic’s team some time to see whether and how the new practice generated value for the clinic. In Social Clinic, coordinating among the frontline staff was one of the clinic’s main challenges and the new practice—the Daily Prep Meeting—helped with that. Given the value it created, the physicians willingly accepted certain infringements on their autonomy in order to improve their coordination. However, in the final Daily Prep Meeting model, they did modify the design to reduce the infringements on physician autonomy. They allowed some flexibility for the physicians and only required them to attend if they were the “on call” physician that day.
4.4.3.2 Limb Clinic

Limb Clinic was a busy surgical clinic with many physicians seeing patients concurrently. The clinic was open from 8 a.m. to 4 p.m. daily. The initial model for the Daily Prep Meeting in Limb Clinic, described in Table 4.5, involved bringing the whole team together near the start of the clinic to discuss the day. As shown in Model 1, Table 4.5, the meeting included three parts: physicians ran through their patient lists and highlighted any special concerns; the flow coordinator gave the team an overview of the day’s logistics using a new “logistics whiteboard” tool that had the schedule, room allocations and potential flow interrupters; and the manager or flow coordinator asked the team the questions listed on the Daily Prep Sheet tool.

This model, particularly the first and third practices, created infringements on the physician’s autonomy in three ways: (1) it standardized clinic preparation across physicians; (2) it dictated how the team coordinated the multi-disciplinary care for the patient; and (3) it required physicians to commit to being in the clinic at the same time every day (as indicated by the check marks in Table 4.10). In addition, Limb clinic was a high volume surgical clinic where the physicians might collectively see over 100 patients in a single day. As a result, the advocated practice of having the physicians run through their patient list was thought (by the physicians) to be entirely infeasible and represented a considerable barrier to the delivery of timely care within the clinic. At the first Daily Prep Meeting, the physician champion simply said, “this model cannot work in Limb” and so the component requiring the physicians to run through their patient list was immediately abandoned (as indicated in Model 2, Table 4.5). One of the Limb Clinic physicians described the concerns about the Daily Prep Meeting:

“We've had no success with that. It doesn't really work for us. When you've got six or seven patients to see in the afternoon, that's fine. When you're seeing 100 patients it's completely impractical. You can't. If you go through all 100 patients, you've got no time to see them! ... [The performance improvement group] arrived at the model from one particular specialty. And then they said, ‘Oh, this is the model.’ And they haven't done the due diligence, saying, ‘Well, will that work for some clinics?’ You know, in psychiatry, they see one person, then go have lunch, then come back and say, now what? So they can do that sort of, you know, morning [Daily Prep Meeting].” (Physician, MD8)
The two other components—discussing the logistics and asking the Daily Prep Sheet questions—continued for a few months, but the team struggled to see the value these practices were generating for the clinic. For example, in the second trial of Daily Prep Meeting (using Model 2 in Table 4.5), one physician reviewed the logistics board and noted that they had 120 patients and that it would be an incredibly busy day. Another physician in attendance commented:

“So, how is this meeting is actually helping with any of this? We’re meeting now and the delays are piling up. There are delays at every point in the process: the patients arrive and are delayed in getting registered; then they go to x-ray and get delayed even more. It’s often 3 or 4 hours before my patients are ready to be seen by me.” (Physician, MD10)

This debate over the value (or lack of value) in front of the team got quite heated. A senior member of HealthHub’s MIIS implementation team commented that they had done time studies and the problem was not registration; the problem was that the physicians arrived late to clinic and left when they wanted to. The physician (MD10) responded, saying, “I would be careful about saying the physicians leave. I stay here until the last patient is done and often that can be 6 p.m. I’m here after everyone else has left.”

Despite these issues, two or three physicians continued to attend for the first couple of weeks. As one physician explained,

“It doesn’t work and it won’t work. You know, I’ll come and do it because it’s 2014 and that’s what’s expected. But it won’t change anything. Everyone knows what the big problems are and this doesn’t help any of them… Things don’t flow well and no one does anything about it.” (Physician, MD10)

But, as the team continued to pilot the new practices, neither the physicians nor the clinic staff could articulate the value the practice generated. One of the clinic team members commented:

“When we first starting doing it, I felt, to be honest with you, I felt a little ridiculous doing it. Because I would run around, grab the whole group, pull everybody away from their work, and I’d ask them five questions that nobody had any answer for. Nobody! It really wasn’t effective. I just couldn’t get people to come out to it… I can’t blame everybody either, to like drop what they’re doing and come out to—you don’t really have answers to these questions right? And I’m walking away with all these blank sheets, it was just tough.” (Administrative staff, AD15)

The physicians who were initially engaged stopped attending after a few weeks (as is noted in the second last column of Table 4.5). When asked about the physicians’ lack of participation, the manager (AD12)
said, “I put it in their calendar, so what else can I do?” Similarly, the flow coordinator said, “I had one or two [physicians] come out here and there. But you know, there was a few that thought the whole thing was very stupid. And they said that, just like that.”

The manager continued to have the non-physician clinic staff meet to review the logistics and discuss the Daily Prep Sheet questions (Models 3 and 4 in Table 4.5), but this did not provide much value to the clinic staff either (especially without the physicians) and so was ultimately abandoned (Model 5 in Table 4.5). The clinic team did find value in the logistics board though, and so it was adopted as a communication tool for the team. This logistics board had been a tool associated with the Daily Prep Meeting since the beginning. However, by the end (in Model 5), there was no longer a meeting taking place around the logistics board. Rather, the flow coordinator would fill out the board and leave it in the clinic’s main office where others could look at it if they found it useful.

During the implementation in Limb Clinic, the physician champion kept refocusing the team on the clinic’s core problem: the clinic schedule. As one physician informant (MD8) commented, “Our goal is to have the clinic run smoothly. The main issue every day is that the clinic volume is too high. There are too many patients and not enough staff and doctors.” While the physicians had dictated what they wanted their schedules to look like (which was one dimension of their autonomy), there was too much demand for clinic services and so patients were often added-on to already overbooked clinics. In describing the overall clinic schedule, the same physician commented that there had been a “breach of common sense” in how the schedule was put together.

This problem affected everyone on the clinic and so the team decided to develop and implement two alternative meetings to address this: the Weekly Preview Meeting (introduced in Model 2, Table 4.5), and the Physician Schedule Review (introduced in Model 4, Table 4.5). The Weekly Preview Meeting was a weekly meeting among the administrative staff, led by the flow coordinator, where they would quickly look at the following week’s schedule to see whether there were any major issues. For the Physician Schedule Review the administrative staff met weekly to review each physician’s schedule a week in advance to ensure that it aligned with the physician’s individual scheduling preferences. If there
was any deviation from the schedule template, the clinic’s administrative staff would try to correct the problem or email the physician’s administrative assistant to notify them of the issue.

The new practices were physician-centric and aligned with each physician’s unique way of practicing medicine. In a sense, the physicians co-opted the implementation of the Daily Prep Meeting to redirect the clinic resources toward better supporting the physician’s work. These new practices effectively removed the infringements on the physician’s autonomy, since the physicians did not actively participate in these meetings; they shifted the practices away from the physicians entirely. At the same time, these meetings bolstered physician autonomy since their purpose was to ensure physicians’ schedules were aligned with their own individual preferences. Physicians’ participation in the design process and their constant focus on solving the clinic’s real problems—in addition to the work done by the rest of the clinic team—did help the clinic develop new practices that were valuable to the physicians and the clinic as a whole.

4.4.3.3 Body Clinic

The change trajectory in Body Clinic, described in Table 4.6, had some similarities to that of Limb Clinic. Like other clinics, Body Clinic designed a Daily Prep Meeting model that brought the clinic team together before the start of clinic to run through the patient list, highlight any issues for the day and ask the Prep Sheet questions. Throughout the implementation, the team also developed a few different tools to aid in the discussion, including a physician prompt to keep physicians on topic in their discussion (developed in Model 2 in Table 4.6), and a large whiteboard with the day’s logistical information (developed in Model 6 in Table 4.6). Body Clinic’s Daily Prep Meeting practices infringed on multiple dimensions of the physician’s autonomy including how to prepare for clinic, how to coordinate and use clinic resources; and how physicians balance their time across their obligations within the hospital (as shown by the checkmarks in Table 4.10). Body Clinic went through ten different models of the Daily Prep Meeting as they tried to find an approach that worked for their clinic.
The team first implemented the Daily Prep Meeting in one instance of the physician champion’s sub-clinic. This sub-clinic instance had two physicians, a nurse practitioner, a nurse, a dietician, researchers, residents/fellows, a flow coordinator and administrative staff involved. Although the meeting required the physicians to prepare for clinic and arrive early, the physician champion found the meeting valuable because it allowed for the efficient organization of the team’s activities. In fact, this physician had instituted this practice before the start of the MIIS implementation in Body Clinic; the physician had heard about something similar happening in another area and thought it would be a valuable addition to the clinic.

During the meeting the physicians would indicate what the flow coordinator should do for the patients, whether the patient was appropriate for the researchers or residents, whether the patient needed to see a non-physician clinician and if there were any other potential barriers in the day. With less than 20 patients in the sub-clinic on those days, it was feasible for the physicians and nurse practitioner to briefly discuss each patient and their needs within the short meeting. The other physician participant also found there was value to the practice:

“It’s worked. And now in the beginning of clinic I get to tell [the flow coordinator], and the dietician, and the trainees what I need to get done for these patients and it works… I actually think it’s great…And sure, I’ll occasionally roll my eyes about having to go through my patients, but that’s because… That’s my personality. It takes five minutes, it’s not a big deal and actually I like it because [the other physician] and I actually exchange clinical information and sometimes there are very interesting patients. Like, it’s nice. I like to know these things, right?” (Physician, MD7)

When the formal MIIS implementation began, the clinic team tried to adapt the existing practice by adding the Prep Sheet questions to the end. The performance improvement coach was adamant that this was an integral component of the program and could not be ignored. So, once the physicians were done running through their patient lists (which was the pre-existing practice), the manager or flow coordinator would then ask the Prep Sheet questions to the whole team. This approach did not work well since the clinic team did not have answers to the questions and felt like it was delaying the start of the clinic. As a result, in Model 3 in Table 4.6, the clinic team decided to separate the Prep Sheet questions from the Daily Prep Meeting. Under this configuration, the manager met with their team (the non-
physicians in the clinic) to discuss the Prep Sheet questions and the physicians were not involved in this practice. The Daily Prep Meeting continued, but without the Prep Sheet questions being asked at the end. This separation was evident in most of the models attempted by Body Clinic.

Although the clinic has some success doing the Daily Prep Meeting in one sub-clinic instance, the rollout to other sub-clinics within Body Clinic was challenging. In some clinics, the physicians were unable or unwilling to be flexible with their time in order to come early to meet with the other members of the clinic. This reflected physicians’ defense of their autonomy over how they allocate their time across tasks. In other instances, the sub-clinic team composition was simply one physician and one nurse and so both parties felt it was pointless to have a formal meeting, especially since the nurse and physician would be in constant communication throughout the day. One physician informant (MD4) described this: “In my clinic, it’s just me and [the nurse]. So there. That is the team. So we always kind of did that anyway.”

At its peak, the Daily Prep Meeting spread to half of the sub-clinic instances in the week but six months after the implementation started, there was only one sub-clinic instance—led by the physician champion—that did it regularly and a couple of others that did it on an ad hoc basis. The team also abandoned the physician prompt because it was not effective at focusing the physicians (see Model 3 in Table 4.6) and stopped asking the Daily Prep Sheet questions altogether (in Model 6 in Table 4.6). The flow coordinator maintained the logistics whiteboard for many months but stopped once it was clear that it generated little value to others in the clinic (see Model 9 in Table 4.6). In discussing the whiteboard, one physician commented:

“We never looked at it. Like I don't really care… On the day-to-day basis, I don't really care what they're doing in [the other sub-clinic] as long as I have space to see my patients. I don't know if it helped [the flow coordinator]… But I didn't need to know how many patients were in [the other sub-clinic] at all!” (Physician, MD4)

The adoption was not just dependent on the individual physician’s characteristics, which is evidenced by the fact that the adoption of this Daily Prep Meeting did not follow the physician champion to the physician’s other sub-clinics. While this physician found the practice valuable before one sub-clinic instance on Fridays, the physician was not interested in doing it for Tuesday’s sub-clinic instance.
Furthermore, the physician quoted above who was willing to participate with the physician champion on Friday mornings, would actually cancel the Daily Prep Meeting if the physician champion was away that day. Other physicians also adopted a flexible approach, where they saw some benefit in the Daily Prep Meeting, but not enough that they were willing to give up their autonomy over managing their time commitments and preparing for clinic and so the Daily Prep Meeting would happen on an ad hoc basis, depending on the physician’s schedule (see Model 8 in Table 4.6).

Through the adaptation process, the team in Body Clinic also ended up developing and implementing new practices that were not part of the MIIS template. Like Limb Clinic, the main problem in Body Clinic was overbooking patients, which would cause clinic delays and dissatisfaction. The nursing and administrative staff identified this as a core issue and decided to implement a new process, called the “Pre-Clinic Meeting” (see Model 7 in Table 4.6). In this practice, each nurse met with their physician a week or so in advance of the clinic to review the schedule and see if any changes were required. But in contrast to the approach in Limb Clinic, the Body Clinic physicians were supposed to participate in these discussions. This new practice also created infringements on physician autonomy, as described by one physician:

“[The other physician] does the pre-clinic meeting. They will run his clinic list and look up the patients. And I just won’t do that. I won’t do that. No, I’m not going to do that. I mean, like I said, until my memory starts to fail me… That is extending clinic time, right? That’s what it is to me… It’s the concept that to make clinic easier, I’m going to spend 45 minutes to an hour outside clinic to make clinic easier. And I get that but… I do one clinic a week and it’ll just expand. It will become exponential. People really don’t realize that when they measure your clinical time. They’re like, ‘Okay, you do four hours in clinic.’ Like no! We don’t do four hours in clinic, because every one of these patients has a letter to be dictated and the dictations that come back have to be edited. The lab results have to be followed up on. So actually doing one half-day of clinic a week is way more than just those four hours when you’re physically down there. Way more. And so that adding a pre-clinic meeting to me is more encroachment.” (Physician, MD7)

In these instances, where either the physician refused to participate or would only participate ad hoc depending on their schedule, the nurses often stepped in to fill the gap. One clinic nurse described the adoption of this Pre-Clinic Meeting:
“I think it depends on the nurse, and I think it depends on the physician. So for [physician A’s] clinic… I look at her clinic and see if there’s anything that needs to be addressed before tomorrow… I just do it myself… She’s mostly research, so trying to track her down is next to impossible, and my schedule is difficult too. So, Wednesdays are a good day for me, but are not good for her because that’s when all her teaching sessions happen. And she’s [doing procedures]. For [physician B], I usually do it the week before when I’m in clinic, and I’m like “Okay, I’ve gone through the list, everything’s fine.” She’s like, “Okay.” And then for [physician C], yeah he would never meet with me.” (Nurse, RN6)

In adopting this new practice, the Pre-Clinic Meeting, the clinic team accepted variation across the physicians such that each individual physician could decide whether to participate. They allowed the physicians to accommodate the new practices in ways that were parsimonious with their own way of practicing medicine, even if that meant that some physicians did not participate.

4.4.3.4 Complex Clinic

Right from the beginning of the implementation, the Complex Clinic team had to significantly adapt the Daily Prep Meeting due to the structure of their clinic. The models they implemented are described in Table 4.7. Because their clinic only ran one day per week, they decided that the cadence of the Daily Prep Meeting should be the same. Because many of the physicians and clinic staff only worked part time in the clinic, the team decided to hold the Daily Prep Meetings at the same time as “weekly rounds” (since everyone was already scheduled to be in clinic at that time). Weekly rounds was an existing practice within the clinic. It was a 1 hour-long, weekly, clinically-oriented meeting, led by the physician director, where the whole team would get together to review the patients and prepare for the next day’s clinic. The team decided they would use the first 10 minutes of this meeting to do the Daily Prep Meeting. They used the templates provided during the training to create the Daily Prep Sheet with questions to guide the discussion. In addition, the team felt that it would be valuable to debrief after the clinic day, so they decided to implement a second new practice, the Daily Debrief Meeting, with its own Daily Debrief Sheet to guide that discussion. This set of practices is outlined in Model 1 in Table 4.7.
The practices designed by the clinic team infringed on three domains of physician autonomy. First, the Daily Debrief Meeting occurred outside of the usual clinic hours and so was an infringement on the physician’s ability to determine how to balance time commitments across the hospital. The second infringement was to the physician’s clinic preparation. By occupying the start of the weekly rounds—which are chaired by the physician director in the clinic—the Daily Prep Meeting represented an attempt to standardize the physician’s clinic preparation. In the meeting when the Daily Prep Sheet was first introduced, the physician took the Prep Sheet and pretended to try to read it, moving the sheet away from and closer to the physician’s eyes repeatedly and commented, “What size font is this!” Third, the practice infringed by dictating how the team coordinated the multi-disciplinary care for the patient.

The Daily Debrief meeting was abandoned almost immediately. One non-physician clinician described by it was abandoned quickly after its implementation:

“And what was happening, too, was that reviewing [the patients] after a long clinic day in rounds and then doing the [Daily Debrief Sheet], the team was just like just, ‘No, no, no! Can we just not do this today?’ And we're like, OK, we don't want this to be a burden.” (Non-physician clinician, CL1)

Some of the clinic’s team members said, however, that they did see some value in the Daily Prep Meeting. One non-physician clinician commented that it was really effective at highlighting problems with their clinic operations. Each week, new issues surfaced and over time, as the problems were addressed, the clinic performance improved. The challenge for Complex Clinic was that the Daily Prep Meeting was somewhat redundant with their existing weekly rounds. The clinic was only a few years old and they had been constantly working as a team (including the physicians) to improve how they did things. While the new practice did help in some ways, a non-physician clinician noted that the practice became redundant:

“The [Daily Prep Meeting] helped us develop a lot of the [ideas for improvement] and then things become well-functioning because of [that]… All the reoccurring issues were identified and solved. We're pretty typical in terms of our schedule of how things function. For example, there's a schedule for the facilitators that are from three to five, who's with the teams, who's with the patients. It's a well-oiled machine now.” (Non-physician clinician, CL1)
Overall, the members of the team felt that their weekly rounds actually did a better job of preparing the team for the clinic than the Daily Prep Meeting did. They already had a scheduling and team coordination spreadsheet that were happy with. And so with a lack of value articulated, they ultimately abandoned the formal Daily Prep Sheet and integrated its valuable components into their existing weekly rounds (see Model 3 in Table 4.7). One non-physician clinician in the clinic described the decision:

“So the [Daily Prep Sheet] has kind of disappeared. I think it only became lost because it wasn’t as helpful and a lot of the questions from the [daily prep sheet] had already been incorporated into the new clinic schedule set up. It wasn’t adding value. So we are using components of it in a different way…I think we’ve got a really good system having looked at the process.” (Non-physician clinician, CL1)

The Complex Clinic team had worked to implement the Daily Prep Meeting for over 6 months before ultimately abandoning it and integrating some of it with their existing meeting. For Complex Clinic, the implementation of the Daily Prep Sheet enhanced aspects of their existing processes and the final model (Model 3 in Table 4.7) did not require the physicians to accept any infringements on their autonomy.

4.4.3.5 Head Clinic

While many of the clinic teams tried to engage physicians in the Daily Prep Meeting, Head Clinic decided to implement the meeting with only the manager and the flow coordinator. This was a feasible model for this manager since this manager only managed a small number of clinics. They adopted a model, described in Table 4.8, very similar to the inpatient model in which they would meet daily to discuss the questions listed on the Daily Prep Sheet. For the first two months of the implementation, the performance improvement manager and the quality leader actively pressed the manager to integrate the Daily Prep Meeting with the physician’s existing clinical rounds (where the physicians discussed patients’ clinical issues). But the manager resisted, saying that the practice was going well with just the manager and flow coordinators. When possible, the flow coordinators attended the physician’s clinical rounds and listened
to see if there was anything that would impact the day’s flow. Also, because the flow coordinators had clinical backgrounds, they had more influence in the clinic and were able to take the information from the Daily Prep Meeting and use it to improve the day’s operations.

The manager was committed to separating the processes and ultimately the performance improvement coach and the quality leader accepted the decision. The physician champion observed the Daily Prep Meeting a few times to show support, but never actively participated in the discussion. Head Clinic’s model for the Daily Prep Sheet involved the clinic manager and the manager’s direct reports and so its adoption was driven primarily by the manager’s formal authority. There was not much discussion in the team about whether and how value was being generated. And when value was discussed, it was used to drive smaller changes to the practice (e.g., changing the questions on the Daily Prep Sheet or adjusting the time of the meeting). One of the flow coordinators described how the meeting evolved over time:

“So, every day was too much. But doing it, like, three days a week [is good]. Sometimes we miss one, and just do it twice. And even though we are [meeting] that often, I’m still going through the sheet every day. So, if something happened yesterday, but I’m meeting with [the manager] today, I’ll say, ‘Heads up. Yesterday, this was our issue. This is what we did to fix it.’ So that kind of stuff.” (Administrative staff, AD7)

In the end, Head Clinic implemented a model of the Daily Prep Meeting that did not include physicians. They did the meeting two times each week, though the day varied depending on the manager’s schedule. In addition, they added a similar prep meeting, called the Admin Update, where the manager would meet with all the administrative staff in the clinic and run through the questions outlined on a tool they developed—the Admin Prep Board.

Although the Head Clinic’s Daily Prep Sheet did not engage physicians, it was considered by the performance improvement group to be one of the more successful implementations. It followed the template from the inpatient areas and was largely uncontested as it did not involve the physicians and so did not infringe on the physician’s autonomy.
4.4.4 Value Articulation during Organizational Change

The implementation of the Daily Prep Meeting created a tension between the physician’s autonomy across multiple processual dimensions (e.g., how to schedule patients, how to plan for clinic, how to coordinate and use resources, and how to balance time) and the hospital’s desire to innovate and change the way they provided health services. The hospital management’s lack of control or authority over the physicians shifted the implementation from one of exercising control to one of local adaptation and articulating value.

In analyzing the way my informants talked about value, four types of value emerged (described in Table 4.11). These categories come from interviews and observations where informants discussed their experience during the implementation process where their clinics were adapting the practices to fit their own clinic’s environment. The informants would highlight what was good about the practices, what wasn’t working, and what was driving the team to rethink the model for the next round of adaptation. Looking across my informants’ experiences, four types of value emerged.

The first type of value was that the practice improved patients’ access to care. This type of value was generated when the practice reduced the wait times experienced by patients or ensured that the patient was able to see all of the necessary healthcare providers in addition to the physician (e.g., dietician, social worker). The second dimension of value was that the practice improved the coordination and collaboration among frontline staff in the clinic team. By bringing all of the physicians and non-physician clinicians together in the morning, the Daily Prep Meeting enabled the physicians to talk to other physicians or clinicians about their patients. The third dimension of value was that it helped other staff, especially those in administrative roles, to do their work more effectively. For example, the Daily Prep Meeting ensured that the flow coordinators were equipped to deal with issues as they arose throughout the day. The last dimension of value was that it could improve clinic performance. The practice helped some teams identify recurring issues in the clinics and implement solutions that improved overall performance.
Table 4.11 - Categories of Value Generated by Daily Prep Meeting

<table>
<thead>
<tr>
<th>Dimensions of Value</th>
<th>Description</th>
<th>Examples</th>
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<tbody>
<tr>
<td>Improves patient’s access to care</td>
<td>Practice reduces the time patients spend waiting to see professionals</td>
<td>“I think the flow is better because I think as opposed to on an ad hoc basis, per patient, us having to make the plan when the patient arrives. All the allied staff, like so the dietician, the trainees, they know in advance. Like, for instance, say I’m stuck in a room with a patient and another patient comes in and I’ve already said to [the flow coordinator], ‘This is a good one for trainees.’ She can just give it to the fellow as opposed to having to wait for me to come out.” (Physician, MD7)</td>
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<tr>
<td>Improves coordination and collaboration among care providers</td>
<td>Practice provides a venue to share information, experiences, or expertise with other physicians or professionals</td>
<td>“I think it actually helps them see what each other are working on. I think they’ve realized now like our psychologist in our group would just come and see patients. I don’t think people realized what their days were looking like and how many patients are coming and going sort of thing. So I think it has opened some eyes a bit like as to what rest of the group is doing… Yeah, you know. So I think that has helped a bit too.” (Administrative Staff, AD14)</td>
</tr>
<tr>
<td>Enables clinic staff to do their work</td>
<td>Practice helps others within to the clinic to do their job better by providing necessary information</td>
<td>“I like it because [the other physician] and I actually exchange clinical information and sometimes there are very interesting patients. Like, it’s nice. I like to know these things, right?” (Physician, MD7)</td>
</tr>
<tr>
<td>Improves clinic performance</td>
<td>Practice enhances the functioning of the team and helps them to surface and solve problems</td>
<td>“Myself and [the other admin] we had to like keep staying. It’s actually very helpful to us because we knew what was going on. People knew what we’re dealing with for the day. We were able to sort out like rooms like that needed for the day; a bit better than what we had been. And it also stopped people from - We had every single person almost coming up to us, ‘What patients are booked today?’ So it stopped all of that.” (Administrative Staff, AD14)</td>
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<td></td>
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<td>“I find it helpful because I literally have up there each doctor that’s running that day, the rooms that they’re operating out of, the help that they have, so which nurse I have. And the nurses, from what I’ve gathered, have found it ok, because we kind of divide it where one goes to one end, one goes to the other end. And then you know, which resident, which fellow is helping with that physician; what their numbers are for that day.” (Non-physician clinician, CL1)</td>
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<td></td>
<td></td>
<td>“I think the big successes for me is the communication piece among the team, not necessarily of the physician, but among the team, like who’s actually directing the flow of the clinic. Because I think before [MIIS], it was bits and pieces of information floating around, right? It’s like sort of available, over there, I know it, she doesn’t know it, he doesn’t know it… Now it’s more cohesive. It’s more - everybody is sort of on the same page too, you know?” (Manager, AD12)</td>
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</table>
The question of whether the Daily Prep Meeting was valuable was constantly being debated and discussed in the clinics during the implementation. All five clinics iterated on their model many times to try to develop an approach that was feasible in their environment and generated value to the physicians and others in the clinic. As each model was tested, clinic staff vocalized the value – or lack of value– generated by the practice. It was this lack of value that created the engine for either tweaking the existing model, redesigning it completely, or adding new types of practices that were not included in the MIIS template at all. The models that were ultimately adopted in the clinics varied considerably. Some of them, as in Body and Social Clinics, involved the physicians and required flexibility on the part of the physicians regarding their autonomy across multiple dimensions. Other models, like in Limb, Head or Complex, provided value to clinics (and also to the physicians in some cases), but required no concessions on physician autonomy. Interestingly, physicians did not seem to care only about value accruing to themselves when they decided whether to participate. In some cases, as in Body and Social, physicians were willing to give up autonomy for value generated to others or to the organization itself.

4.4.5 Change Trajectories in Professional Contexts

In all five outpatient clinics, similar change trajectories unfolded. The implementation of the Daily Prep Meeting in each clinic was influenced by the ways in which the practice infringed on the physician’s autonomy across processual dimensions, the adaptations the clinics made in order to remove those infringements, and the value that the practice generated within the clinic. Although the clinic teams each went through their own series of adaptations, patterns in the clinics’ experiences pointed to three trajectories of change in professionalized organizations.

In the first change trajectory, clinic team’s implementation happened in three broad stages: (1) the team implemented a new practice that infringed on the physician’s autonomy, thereby limiting physician engagement with the practice; (2) recognizing this, the implementation team (which may include physicians) adapted the practice to remove the infringements; and (3) once the infringements were
removed, the practice was adopted within the clinic. This trajectory included adaptations that shifted the practice away from the physicians (by no longer requiring their participation), since this removed the infringements on their autonomy. It also included change processes that removed infringements such that the physicians did participate in the final model of the practice. Examples of this trajectory occurred in Limb Clinic (where the adaptation led to new practices among the non-physician staff), Complex Clinic (where they incorporated the Daily Prep Meeting into their existing practice in a way that removed the infringements), and Body Clinic (where both outcomes occurred).

The second change trajectory differed from the first trajectory starting in the second stage where, instead of removing the infringements, the team focused on value. This trajectory also followed three stages: (1) the team implemented a new practice that infringed on the physician’s autonomy, thereby limiting physician engagement with the practice; (2) recognizing the infringements, the team shifted its focus to the value the practice generated and adapted the practice to increase its value to the clinic; and (3) the practice was adopted by the team and the physicians (who accepted the infringements on their autonomy due to the value the practice created). Examples of this trajectory occurred in Body Clinic where the Daily Prep Meeting and the Pre-Clinic meetings were adapted over time to enhance their value to the team. Furthermore, some of the physicians in Body Clinic participated in the meetings even though they infringed on their autonomy. This trajectory also occurred in Social Clinic where Daily Prep Meeting generated sufficient value for the physicians to accept the infringements on their autonomy.

In the third trajectory, the clinic teams attempted to adapt the process to either remove the infringements or increase its value, but were unsuccessful in doing so. This trajectory followed three stages: (1) the team implements a new practice that infringes on the physician’s autonomy, thereby limiting physician engagement with the practice; (2) recognizing the infringements, the team adapts the practices to increase its value and/or reduce the infringements; and (3) the practice is abandoned due to remaining infringements on the physician’s autonomy or the clinic’s inability to adapt the practice in a way that generates enough value. Examples of this trajectory can be found in Limb Clinic where the team was unable to adapt the Daily Prep Meeting in a way that was valuable to the team and the physicians and
so it was ultimately abandoned. The trajectory also occurred in Body Clinic, where they ultimately abandoned the Prep Sheet meeting, many of the tools they developed and failed to get many of the sub-clinics to adopt the practice.

4.5 Discussion & Conclusion

Organizations, like HealthHub, with professionals in the workforce face additional challenges during change. Although all change initiatives risk having the outcomes fall short of the promised impact, the presence of professionals in the workforce creates additional complications. Professionals participate in the organization’s most important knowledge and work flows (Mintzberg 1979), but, at the same time, experience high levels of autonomy in their work and take their cues for appropriate behavior from their profession—a powerful institution that extends beyond the boundaries of the organization. The characteristics of professionals (i.e., their autonomy, power, and status), coupled with the fact that their highly specialized work is often inaccessible to others within the organization, makes engaging professionals in organizational change a difficult prospect.

In this study, I examined how one organization, HealthHub Hospital, attempted to implement changes to its internal practices across five outpatient clinics. Drawing from ethnographic data collected before, during and after the change implementation, I examine how each clinic team attempted to implement a new practice: the Daily Prep Meeting. Although this represented a small change to the clinics’ operations (as it was only a 15 minute meeting), the implementation processes were highly contested as teams struggled to get their physicians to participate, redesigned their models of the practice countless times over many months, and ultimately sought to find a way to make the new practice generate value for the clinic. Analyses of the interview and observational data collected during HealthHub’s change implementation generated new insights regarding the nature of physician autonomy within organizations, how physician autonomy interacts with organizational change processes, the importance of
adaptation processes when implementing change in professional contexts, and the power of value articulation as a mechanism for making change.

At HealthHub, physicians enacted their professional autonomy broadly within the organization. Our existing theory on professionals highlights the importance of professional autonomy for ensuring that professionals have the space and independence required to perform their work. Each profession’s work comprises a set of tasks over which they have control, and this set of tasks is referred to as the profession’s jurisdiction (Abbott 1988). These jurisdictions represent the link between professionals and their work tasks with professional autonomy granting them the right to perform the tasks within their jurisdictions free from outside supervision or interference. With respect to professionals, the concepts of autonomy and jurisdiction are inextricably linked.

Drawing from organizational theory on professionals, the professional tasks that sit within the jurisdiction are technical in nature, reflecting the three elements of professional work: diagnosis, inference and treatment (Abbott 1988). Each of these three elements draws from the professional’s abstract, specialized knowledge in order to provide their clients with appropriate care. Diagnosis and treatment are mediating acts where information about the client’s situation is translated into and out of the profession’s abstract knowledgebase. Inference, on the other hand, is where information from diagnosis is combined with the professional’s knowledge of potential treatments and their outcomes in order to determine the best treatment for the client (Abbott 1988). It is these three elements that make up the professional’s technical work and form the basis for professions’ claims to control jurisdictions. “The sequence of diagnosis, inference, and treatment embodies the essential cultural logic of professional practice” (Abbott 1988: 40).

Past research examining how organizations implement change in their professional workforce has often focused on disputes over the technical work of professionals. For example, Huising (2014) examines how a university tried to transfer the technical work of environmental experts to others within the organization. Similarly, Kellogg (2011) analyzed how a hospital implemented a reform limiting residents’ work hours, which ultimately required shifting technical work from one professional to another.
In both cases, these changes represented infringements on the individual professional’s control over their technical work; they affected the professionals’ technical autonomy.

What I found at HealthHub was that the organizational changes that were mandated had nothing to do with the technical work of the physicians; they did not affect the physician’s technical autonomy. Rather, the implementation required making small changes to the processes and practices within the outpatient clinics. They required each clinic’s team, including the physicians, to meet for 15 minutes each day, to “proactively plan their day.” Yet even in this situation of small-scale changes to non-technical work, HealthHub struggled to get the physicians to participate in the new practice. By systematically analyzing the sources of the difficulty in engaging the physicians in these small change, I found that professionals enacted their autonomy within the organization more broadly than their technical work. Within the organization, the physicians also exercised autonomy across processual dimensions, which reflected the processes surrounding the physicians and their technical work.

As the scope of the physician’s autonomy expanded beyond the technical work, it intruded on the hospital’s jurisdiction. In professional organizations, there is a division of labor between the professionals and the organization: professionals perform their technical work, and the organization manages the non-professional work and the broader processes and practices (Mintzberg 1979). This division of labor is evident in many professionalized settings such as universities, for example, where faculty do research and teach students, while the university administration manages other processes (e.g., admissions, finance, HR, etc.). At HealthHub, the physician’s autonomy in these processual dimensions extended the physicians’ enacted jurisdiction to the point where it overlapped with the hospital’s jurisdiction. Conflict during the implementation of the top-down changes arose because the proposed changes infringed on the professionals’ autonomy in processual domains (such as how to prepare for clinic, or how to schedule their patients).

This research contributes to our understanding of jurisdictional conflicts between professionals and organizations by highlighting that it is not only control over the technical work within the jurisdiction that can cause conflicts. Professionals may just as fiercely defend their autonomy in the more processual
dimensions of their work. Furthermore, the research illustrates that even small changes can generate major resistance from professionals if they represent limits on their autonomy. The challenge, therefore, for organizations is that professionals’ autonomy extends beyond the technical realm meaning that the breadth of potential infringements is large. Professionals’ enacted jurisdictions—reflecting this broader scope of autonomy—overlap with the organization’s jurisdiction and, to the extent that the mandated changes affect this area of overlap, it can be highly disruptive to organizations as they try to make change. While researchers have often been concerned with the potential for organizations to intrude into the work of professionals, my research illustrates that professionals can also intrude into the organization’s domain in ways that influence the organization’s ability to make change.

This study also points to the importance of adaptation during change processes in organizations with professionals. At HealthHub, the prescribed changes were centrally-designed and pushed out to the five clinics to implement. The practices represented an attempt to standardize the work processes within and across the clinics. The frontline staff in the clinics, including the physicians, regularly noted the ways in which the practice infringed on the physician’s autonomy and failed to generate value for the clinic. However, there was a strong mandate for change from the hospital management and so the clinics each went through an adaptation process whereby they either attempted to remove the infringements on professional autonomy, or they adapted the practices in an effort to increase the value they generated. As clinics iterated on their models of the new practice, the removal of infringements and the articulation of value acted as engines propelling the teams forward.

These change trajectories—which involved removing infringements and generating value—often occurred simultaneously in clinics and led to four possible change outcomes. In the first outcome, the infringements were removed by adapting the practices and shifting them away from the physicians such that their participation was no longer required. In this case, others within the clinic (such as the nurses and flow coordinators) would perform the practice independent of the physicians. The second change outcome occurred if the infringements were removed in such a way that the physicians could participate in the practice without experiencing any infringements on their autonomy. In the third possible outcome, the
team was unable to remove the infringements, but because the practice generated value, they were willing to accept the infringements on their autonomy and so participated willingly. In the fourth and final outcome, the team was unable to remove the infringements or the team could not articulate sufficient value in the practice and so it was ultimately abandoned. Each of these change trajectories and outcomes occurred in the five outpatient clinics I studied. Although I present them as analytically distinct trajectories, they were often intertwined in practice leading to complex adaptation processes within the clinics.

The experience at HealthHub also suggests that the articulation of value by clinic team members is an important factor that shaped both the change processes and outcomes within HealthHub. When participating in new practices, physicians appeared to balance the value generated from their participation in the new practice with the infringements on their autonomy generated by the practice. However, that nature of this complex calculus differed between physicians, leading to substantial variation in whether physicians participated in the new practice. For change trajectories that failed to remove the infringements, physicians participated on an ad hoc basis; they adopted the practices in ways that were parsimonious with their own professional practice. This study contributes to our understanding of organizational change and control in settings dominated by professionals by providing an alternative mechanism to engage professionals in change: value. Rather than requiring “censure episodes” (Huising 2014) or “relational spaces” to facilitate the change movements (Kellogg 2009), my research indicates that articulating value in the change process is an important alternative explanation for why change can happen in professional contexts.

How can organizations make change when the workforces are dominated by professionals? From the organization’s perspective, this research highlights three approaches that can help with the implementation of organizational change in professional contexts. First, organizations can create a focus on value and try to increase the value of the change perceived by the professionals. This can, for example, be done by using physician champions as leaders during change. Their position of power within the team
can encourage others to participate, if even for a short time, until the value of the practice becomes evident.

Another potential approach for organizations is to consider what sort of variability in adoption is acceptable across its professionals. Organizations should try to understand the nature of the infringements that the changes cause for their professional workforce and recognize that there may be variation in how the infringements are perceived by the professionals. Organizations should recognize that both the perception of value and the perception that autonomy is being infringed can vary substantially across professionals. Rather than enforcing standard practices across all professionals, organizations can explore the source of heterogeneity in these dimensions and define what sorts of deviations from the template are acceptable.

Finally, organizations could allow units to adapt the new processes or practices so that they both fit their environment and solve their unit’s most pressing needs. Instead of holding units accountable for implementing the exact template of the new practices, organizations can view their role in change as providing a toolkit. Rather than adopting a box-ticking approach to rolling out changes, organizations should shift their own internal accounting to measure value. Furthermore, the value they measure should not just align with the pre-set goals of the centrally designed programs. Local innovations may create different types of value that are worth considering.
5. Conclusion: Professions, Organizations, and the Challenges of Change

5.1 Implementing Change with a Professional Workforce

When organizations attempt to change their internal processes in order to achieve some set of desired performance outcomes, the presence of professionals in the workforce is a complicating factor. In this concluding chapter, I integrate the insights from the two different studies—the large-sample quantitative analysis and the field-based qualitative work—to identify and discuss some common themes regarding change in these difficult contexts. In doing so, I include some discussion of open questions on this topic and provide some ideas for how to further test the nature and significance of the boundary between professions and organizations. Drawing from the two studies, I conclude the chapter with a set of policy considerations rooted in the context of healthcare delivery but with potential relevance to other types of organizations with professionals.

In Chapter 2, I examine the conditions under which changes in financial incentives can influence professionals’ activity patterns by analyzing a large sample of fee-for-service physicians performing varied tasks across multiple workplace contexts. In this study, I explored the complex relationship between professionalism (which acts to constrain professionals’ self-interest) and financial incentives (which rely on self-interest to act as the engine for behavior change). While theory on professionals
emphasizes the power of professionalism (i.e., professional norms and ethics), empirical evidence of professional behavior shows that professionals do, at times, privilege their own self-interest over the interests of their clients; they appear to act in violation of their professionalism. To explore this, I developed the theory of situated professionalism which explained why the strength of professionalism may vary depending on different contextual features of the professional’s work (such as the characteristics of the specific tasks performed or the professional’s work setting). In particular, I find that the professional norm of doing no harm to clients and the level of autonomy experienced by the professionals can both play an integral role in shaping the efficacy of financial incentives on professionals.

In Chapters 3 and 4, I provide an in-depth study of one hospital’s attempt to implement change in its highly professionalized workforce. I explore how change was negotiated and contested within five outpatient clinic teams. I focus my attention on the role of the physicians and find that the change processes and outcomes are shaped by whether and how the mandated changes infringed on physicians’ autonomy. While previous work has focused on the importance of a professional’s autonomy over their technical work, the changes introduced by the hospital had nothing to do with the technical work of the physicians. By analyzing the physicians’ lack of engagement with even these small, relatively benign changes, I found that physicians enacted their autonomy more broadly within the organization to more processual dimensions. Drawing from the ethnographic data, I identified three change trajectories that occurred within the clinics, all of which were driven by local adaptation processes to either remove the new practices’ infringements on physician autonomy or enhance the value generated by the practice.

These two complementary studies uncovered many similar themes. Taken together, the studies identified three considerations shaping organizations’ capacities to implement change with professionals: (1) how the organizational changes interact with professional norms; (2) how the intended changes impact (or are impact by) different dimensions of professional autonomy within the organization; and (3) how the professionals and others are engaged in the creation and articulation of value during the change process. I will describe each of these considerations in detail below.
5.1.1 Organizational Change’s Interaction with Professional Norms

Professionals’ behaviors are deeply rooted in the norms of conduct of their profession (von Nordenflycht 2010). In theory, these professional norms lead individuals belonging to the same profession to exhibit similar behaviors, regardless of their individual incentives (Andersen 2009). Professionals begin to learn these norms when they enter the profession. Researchers have illustrated the power of the socialization process for professionals (Becker et al. 1977), often noting that “becoming” a professional has a lasting effect on professionals’ behaviors (Antebay et al. 2015). These norms can shape the technical work of professionals (e.g., how a doctor should treat a certain patient), how professionals present themselves (e.g., wearing a white coat and a stethoscope) and also how professionals interact with others (e.g., the relational dynamics between physicians or between physicians and nurses). Professional norms have been portrayed as a mode of normative control through which the profession controls its members (Alvesson and Kärreman 2004). They are a “silent pressure of opinion and tradition…which [are] constantly around him throughout his professional career” (Carr-Saunders and Wilson 1933: 403).

When organizations with professionals attempt to implement change, the way the change interacts with professional norms can play a determining role in whether the changes get implemented. Physicians in the first study (in Chapter 2) were willing to take financially-motivated actions, but not if the actions violated one of their strongest professional norms—do no harm. Yet at the margin, if the financially-motivated actions would improve the physician’s financial situation while having minimal effects on the patient, physicians appeared more willing, on average, to take advantage of the changes in financial incentives. When facing incentives or other types of mandates for change, my research shows that professionals will balance their own interests against the interests of their clients. In this way, professionals’ willingness to comply with the prescribed changes is shaped by the changes’ alignment with professional norms.

What remains unclear to me is how the physicians perform this internal mental calculus. How do they determine the potential for harm? Do they only care about physical harm, or do they care about
whether the patient is inconvenienced? Although the Canadian context controls for the financial burden a
treatment can place on the physicians, research in the United States has shown that physicians’ treatment
decisions can differ depending on whether the patient has insurance. In the non-Canadian context, the
physician may also then be concerned about a financial dimension of patient harm. While the study in
Chapter 2 highlights the importance of professional norms, a particularly useful follow-up study could
unpack how physicians think about the trade-offs they make.

Although professional norms are foregrounded in most analyses of professional behavior,
professionals are not the only types of individuals subject to norms. Employees, regardless of whether
they belong to a profession, act according to some set of broader social norms. For example, most people
would not commit murder to improve their own financial outcomes. How do professionals differ from
non-professional employees with respect to the power of norms? In addition to these broader social
norms, professionals are influenced by profession-specific norms that are relatively homogenous
throughout the profession. While there is likely individual variation in exactly when and how these norms
bind, and there may be some bad apple professionals who act clearly outside professional norms (Dixon-
Woods et al. 2011), professional norms represent profession-level constraints on professionals' behaviors.
Therefore, to the extent that organizations can understand the professional norms and work within them
during the change processes, it can improve the likelihood of positive change outcomes. For example, a
central professional norm for physicians is their concern over their patients’ outcomes. To the extent that
hospitals, for example, can convincingly frame their change initiatives around issues that matter to the
physicians—like improving patient outcomes—it may improve the potential for achieving positive
change outcomes within their professional workforce.

This dissertation highlights the importance of professional norms in shaping change, while at the
same time suggesting that their power is nuanced. This raises many questions: When do professional
norms bind? How does the point at which norms bind vary by workplace setting or professional task?
Uncertainty and discretion are inevitable aspects of professional work; professional norms do not always
identify exactly how a professional should respond to every situation they face. As one physician
informant from the study in Chapter 2 said, “Every single thing [I do] has grey zone … That’s why a computer can’t do my job.” As a society, we recognize this grey zone exists and rely on the combination of professional norms, ethics and the presumed altruistic behavior of professionals to solve the problem (Sharma 1997); they ensure professionals do the right thing in the face of extreme knowledge asymmetry between professionals and their clients. But this dissertation highlights another consequence of the vagueness of professional norms. This “grey zone” creates some flexibility at the boundary of professionals and the organizations in which they work, a feature which can be particularly valuable to the organization during times of change. To the extent that organizational changes target areas in which professional norms do not bind (i.e., in the “grey zone”), the potential for making and sustaining change is enhanced.

5.1.2 Professional Autonomy during Organizational Change

In both studies, professionals’ autonomy influenced their responsiveness to change. In the first study, in Chapter 2, a professional’s autonomy shaped whether and how the professional responded to opportunities to improve their own financial situation (potentially at the expense of the clients’ interests). In the study at HealthHub, in Chapter 4, professional autonomy also influenced their receptiveness to change. Similar to Chapter 2, professionals’ autonomy enabled them to act in their own self-interest and resist participating in the organizational change; professionals’ defense of their autonomy represented one of the principal barriers to change. The new Management Improvement and Innovation System (MIIS) was a top-down centrally mandated change that involved a set of new practices and tools to be used across the units and clinics of the hospital. Although strategically important to the hospital, the changes were ostensibly quite minor in their effect on the hospital’s clinics. For example, the particular practice examined in Chapter 4 was the Daily Prep Meeting—a 15-minute meeting designed to take place at the start of the clinic with the goal of improving clinic operations. The Daily Prep Meeting did not affect the professionals’ technical work of diagnosis, inference and treatment (Abbott 1988).
Yet even for small changes like the daily prep meeting, I found that physicians would not engage; the Daily Prep Meeting created infringements on the physicians’ autonomy. The challenge for HealthHub was that physicians enacted their autonomy more broadly than just controlling their technical work; physicians had autonomy across multiple processual dimensions, each of which influenced the clinic’s internal processes. For example, physicians determined how to schedule their patients, how to use clinic resources and how to prepare for clinic. Physicians’ control and autonomy over these dimensions of work was widely accepted within the clinics. HealthHub’s mandated changes, which affected these processual dimensions of work, infringed on the physician’s enacted autonomy. While researchers have often been concerned with organizations infringing on professions, I find that the opposite may also occur. By enacting their autonomy broadly, physicians created additional barriers for the hospital as it tried to reconfigure its internal processes and practices. Placing professionals in bureaucratic organizations may influence the nature of professional autonomy and how it is enacted by professionals.

From both these studies, we see that professional autonomy plays a pivotal role in shaping the processes and outcomes of change. Its centrality highlights the importance of understanding the nature of professional autonomy itself. What exactly is professional autonomy?

Historically, scholars have made two distinctions when considering the construct of professional autonomy. The first distinction separates autonomy at the level of the profession from the autonomy at the level of the individual professional (Engel 1970; Gorman and Sandefur 2011). Professions maintain autonomy and control over their jurisdiction through institutional supports such as their control over licensing, regulation and training of their professionals. Hall (1968) refers to this as “structural” autonomy. At the individual level, professional autonomy refers to professionals’ abilities to perform their work free from supervision and interference. Professional autonomy at these two levels are related but distinct. For example, scholars studying the proletarianization of professional work note how individual professionals can lose their professional autonomy even in situations where the profession as a whole maintains its autonomy (Freidson 1984). The two studies in my dissertation consider autonomy at the level of the individual professional.
At the level of the individual, professional autonomy is different from the general concept of autonomy experienced by other types of workers (Freidson 1984). Freidson (1988) highlights this second type of distinction by noting that what distinguishes professionals from other types of employees is, at a minimum, their “technical autonomy.” He defined this special type of autonomy as “the freedom to employ discretion in performing work in the light of personal, presumably schooled judgment that is not available to others without the same qualifications” (Freidson 1988: 141). For professionals, discretion is a legitimate and expected aspect of their work (Freidson 1984). This distinction was also highlighted by Engel (1970) who, using different terms, contrasts “personal autonomy” with “work-related autonomy:”

“Personal autonomy is freedom to conduct tangential work activities in a normative manner in accordance with one's own discretion. Work-related autonomy for the professional is freedom to practice his profession in accordance with his training. It is this type of autonomy which appears to be important for the professional, since a loss of work-related autonomy or control to his client, or to any lay individual or group, might reduce the quality of the service he renders.” (Engel 1970: 12)

The “technical” or “work-related” autonomies described above appear to describe the technical work of the professional: diagnosis, inference, and treatment (Abbott 1988).

When exploring the effects of professionals’ migration into bureaucratic contexts, it was this “technical” dimension of autonomy that interested scholars. There was concern over whether the organization would constrain professionals’ technical autonomy and limit their ability to provide their clients with high quality service. The underlying question was whether professionals could preserve this autonomy, even when facing bureaucratic pressures.

Looking beyond the effect of bureaucracy on professionals’ technical work, Freidson questions whether the “very exercise of technical autonomy has complex consequences for the nature of control over work,” within the organization more broadly and whether this technical autonomy can “spill over into areas of control that are conventionally conceived of as supervisory…” (Freidson 1988: 141). Although after much deliberation he concludes that, “professional employees are organizationally impotent even though technically autonomous,” my research at HealthHub indicates the exact opposite;
Freidson was right to question whether and how professionals’ technical autonomy could spill over into more organizational domains.

At HealthHub, physicians maintained autonomy and control in areas beyond their technical work tasks, and this control directly affected HealthHub’s ability to make change. In the study, I describe these broader dimensions of autonomy enacted by the professionals as “processual autonomy.” As a result of this kind of autonomy, organizational processes, such as scheduling and job assignments, were shaped by the idiosyncratic preferences of individual physicians. As a consequence, when the organization attempted to make changes to these types of processes and practices, the changes were resisted due to the ways they infringed on the professional’s processual autonomy.

Autonomy has always been considered to be an intrinsic and defining feature of professional work (Anteby et al. 2015; Carr-Saunders and Wilson 1933; Gorman and Sandefur 2011; Greenwood 1957). While few would dispute the professional’s right to technical autonomy in their work, the other dimensions over which professionals have the right to autonomy is not clear. Without making this distinction, research on professionals may conflate professionals’ technical autonomy, with more general issues of control over other dimensions of work. Understanding how these different types of autonomy interact, and how that interaction is influenced by the organizational context facing the professional should be a central concern in future work.

5.1.3 Pursuing and Articulating Value during Change

The study at HealthHub also uncovered an additional consideration shaping the organization’s capacity to implement change with professionals. The instances where change happened were those where physicians and others engaged in a local adaptation process driven by the pursuit of value. The teams took the ill-fitting new practices provided by the organization and transformed them into new practices that were grounded in the needs of the local environment.
The change initiative at HealthHub was a top-down organizational mandate to implement a set of tools and practices across the whole hospital. The templates for the tools and practices had been formalized on the inpatient units and then pushed out to the outpatient clinics. However, the tools and practices did not uniformly fit well within the five clinics I observed; in many instances, the teams spoke of how the tools and practices were not valuable to them. In some instances, rather than abandoning the practices entirely, the teams tried to adapt the processes to make them fit.

When I analyzed the clinics’ adaptation processes, looking in particular at what was causing the teams to continually redesign their approaches, the concept of value emerged. In both interviews and observations, my informants regularly talked about the value (or lack of value) generated by the new tools and practices. The ability (or inability) for the members of the team to articulate the value of the process acted as the engine to spur further adaptation.

While my fieldwork and analyses uncovered the pivotal role of value in both the change process and its outcome, it also raised a number of questions for future work. In my study, I identified four dimensions of value, but it would be helpful to decompose these categories into both who perceived that there was value generated and to whom the value accrued. This type of analysis may yield important insights about value in change processes by explaining the sources and consequences of heterogeneity across these dimensions. For example, perhaps physicians perceive that value is generated only if it accrues to the patients, while nurses perceive value to be generated if it accrues to either the patient or the organization. Another important source of heterogeneity could be the characteristics of the tools or practices. Studying how individuals’ perceptions of value interact with the object being valued could be a fruitful line of inquiry. Furthermore, decomposing the ways that informants articulate value (using content analytic tools, for example) could also identify interesting nuances in the nature of value articulation itself. While the importance of value articulation in change processes likely extends beyond professional organizations, my research shows that it can play a particularly important role in organizations dominated by professionals, where many of the organization’s alternative tools of influence and control are largely ineffectual.
5.2 Practical & Policy Considerations

5.2.1 Target Changes in Areas with Scope for Action

When making changes with professionals, it is important to target areas with scope for action, particularly since professionals’ behaviors are subject to many different sources of constraint. As evidenced by my study on financial incentives, physicians’ behaviors are not malleable for tasks or in contexts where they are constrained. For example, the physicians I studied did not, on average, adjust their activity patterns for surgeries in response to financial incentives. In this situation, the professional norms bind since performing financially-motivated surgeries violates a central professional norm: do no harm. Similarly, physicians’ abilities to respond to changes in financial incentives were constrained by their lack of autonomy in some settings.

Determining how to design changes that align with the professionals’ scope for action requires considering all the various constraints on professional behavior and how they interact. Take, for example, the interaction between norms, autonomy and value. Implementing a change in a professional organization may go relatively smoothly if the change aligns with professional norms, does not affect professional autonomy and is perceived by professionals to be valuable. It is less clear, however, how this professional’s openness to change responds when there is less value (even when the norms still align and there are no threats to autonomy), or in other configurations. Furthermore, the characteristics of the tasks being targeted for change—particularly whether they are the professional’s technical tasks or not—may also influence the professional’s willingness or ability to change. Understanding the way these constraints interact, and targeting areas that have scope for action, are central for organizations and governments as they design and implement change.

5.2.2 Enable Local Adaptation in the Pursuit of Value

This dissertation also suggests the importance of articulating and pursuing value during the organizational change process. At HealthHub, the mandated changes were centrally designed and the templates were
pushed out to the different areas of the hospital. Throughout the implementation, however, HealthHub struggled to measure and communicate the impact of the MIIS. Without concrete data pointing to the value of MIIS tools and practices, the performance improvement team could only articulate the value in a very general way. For example, they would repeatedly share some of their success stories where units had redesigned their space, implemented checklists, or moved chemo start times earlier in the day. They would also rely on a set of MIIS advocates (from management, nursing, administrative staff and even physicians) who would come to training sessions and share their positive experience. And yet, at the same time, there was no systematic measurement of the value of the program as a whole. This created challenges for convincing physicians that the MIIS was worth their time and was not just a “flavor of the month.” The fact that, as one physician informant at HealthHub said, “Doctors like numbers,” emphasizes the important role that measurement and quantification have in encouraging physicians to participate in change.

The ability to articulate the value of new organizational changes is particularly important when dealing with a professional workforce. Professionals’ high degree of autonomy can make them resistant to bureaucratic control and so rather than trying to force professionals’ participation in change, the organization can instead focus on how the change is communicated and framed to the professionals. For example, one of the performance improvement experts at HealthHub noted that teams that focused on metrics that mattered to physicians were able to generate higher levels of physician engagement. In addition to selecting changes that align with the interests of the professionals, organizations may also engender higher rates of professional participation by reframing the goals of the broader change program when they communicate to professional stakeholders.

Finally, this research points to the importance of local adaptation processes in the pursuit of value. As designed, the templates of the MIIS tools and practices did not generate value to the clinics I studied. Rather than forcing strict adherence to the change templates, HealthHub allowed each clinic to undertake their own adaptation processes (which were monitored by the central performance improvement team). Although these adaptations led the teams away from the standard templates, they
enabled the teams to develop tools and practices that solved real issues their clinics were facing.
Ultimately, these local adaptations led to the generation of value for the clinic teams. While organizations
often strive to standardize practices or find the one “best way” to do things, making change in
organizations dominated by professionals may require organizations to embrace some degree of variation.

5.2.3 Engage Professionals throughout Change

Physician engagement is often cited as one of the most significant barriers to change in healthcare
contexts. When I asked my physician informants at HealthHub about the challenges of physician
engagement, some pointed out that they were often approached at the last minute, once the change has
already been designed, and asked if they would be a “physician champion.” I observed a similar type of
situation where the MIIS project manager introduced the program to a clinic’s physician group for the
first time, but only once the implementation was already underway. Some physicians, however, are
interested in taking on a larger role beyond acting as a token physician champion. For example, one
physician informant said that they had previously been involved in a lean management project to redesign
workflows in the clinic and had really enjoyed being part of the process; what made this experience
particularly fruitful for the physician was that they were involved from the beginning and participated in
analyzing the problems, developing the solutions and implementing them. Furthermore, my analyses of
the change processes in HealthHub’s clinics indicate that when physicians participated in developing new
practices—such as Limb Clinic’s schedule review—the new practices had a positive impact on the clinic.
These examples point to the importance of engaging professionals in the change process early and in a
meaningful way.

Despite its potential benefits, this approach has one major challenge: the physicians’
compensation structures. Specifically, many physicians are paid through fee-for-service systems that
reward only the technical work performed by the physician. As a result, physicians’ participation in
analyzing problems and designing solutions would be uncompensated. Along this dimension, HealthHub
was a special case since its physicians were not compensated on a fee-for-service system, which made their participation in change more likely. Hospitals and governments serious about increasing physician engagement in change need to institute compensation structures that reward physicians for participating in change in a meaningful way.

Finally, my time at HealthHub cued me to the potential that physician disengagement had taken on some mythical qualities. Almost every non-physician I spoke with would comment on the difficulty in getting physicians to engage in change. But at the same time, I saw countless incidents were physicians were not told about the change, were not asked to participate, and, in some cases, were actively avoided. Non-physicians would often leave the physicians out based on the belief that physicians don’t participate. While this may be true on average, the behaviors of the non-physicians certainly contributed to a self-fulfilling prophecy of physician disengagement: the myth of physician disengagement.
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