

The Urgent Care Connection

Dissertation Proposal

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OVERVIEW

Ambulatory care accounts for approximately one-third of health care spending in the United States (AHRQ 2013). Every year 1.2 billion visits are made in ambulatory care settings (CDC 2014), 50 million of which are for simple acute conditions such as bronchitis or urinary tract infections (Mehrotra 2013). Many of these visits take place in traditional care sites such as primary care offices and hospital emergency departments. However, patients are increasingly seeking care in non-traditional settings such as urgent care centers.

Urgent care centers are health care facilities providing walk-in medical care for a wide range of acute conditions that are non-emergent but require prompt attention. Urgent care centers are part of the rapidly proliferating “convenient care” segment of the healthcare industry, which encompasses a broad spectrum of consumer-oriented innovations targeted toward swift, easily accessible, and more affordable care. Some novel convenient care approaches, such as electronic visits and telemedicine, allow patients to determine the locus of care. Urgent care is a form of convenient ambulatory care. Unlike traditional ambulatory care, urgent care centers operate almost exclusively on a walk-in basis and are often conveniently located in areas of high “foot traffic” within communities. Many also provide transparent pricing with the menu and price of services often listed online or onsite.

A confluence of factors, including growing consumer demand for more accessible and affordable care, healthcare coverage expansion, long wait times for primary care appointments, and crowded emergency departments, have stimulated significant interest and investment in convenient care in the last few years (Weinick et al. 2007; Yee et al. 2013). In 2014, there were an estimated 6,400 urgent care centers in the U.S. —a figure projected to reach 12,000 within the next five years.

The growth of urgent care poses intertwined opportunities and challenges. Because of their expanded hours and walk-in availability, convenient ambulatory care has the potential to fill the gaps in after-hours primary care while simultaneously shifting care away from higher cost emergency departments. According to one study of ED use in New York, three quarters of ED visits to New York Hospitals were either for nonemergent conditions or for cases that are emergent but treatable primary care settings (Billings et al. 2000). Because they typically offer a narrower set of services than emergency departments, urgent care centers have the advantage of specialization, which allows them to focus on delivering lower-acuity care at a lower cost than full-service emergency departments. Research has found that per-episode cost of care for simple acute conditions delivered at urgent care was significantly lower than care delivered emergency department and even primary care offices (Thygeson 2008; Mehrotra et al. 2008). Some estimate that 13-27 percent of all ED visits could be shifted to an urgent care center or retail clinic, amounting to a potential annual cost savings of \$4.4 billion. (Weinick, Burns, and Mehrotra 2010). Therefore, urgent care can potentially address overcrowding at emergency departments while simultaneously decreasing costs if used as an appropriate substitute.

Furthermore, urgent care can help meet growing consumer demand for flexible, convenient care – a feature that may be particularly valuable to those without a regular source of care or those with simple episodic care needs. For example, recent research found that most adults (72%) who lack a usual

source of care do so as a matter of preference (i.e. because they don't get sick, go to different places for different needs, or have no need for doctors) (Viera, Pathman, and Garrett 2007). For those individuals, urgent care can be a desirable substitute for primary care and a key point of access to the health care delivery system.

However, substituting traditional ambulatory care with convenient care also increases the potential for fragmenting care. In the context of primary care, continuity is viewed as the relationship between a single provider and a patient, and implies a longitudinal relationship that extends beyond specific episodes of illness or disease (Haggerty et al. 2004). As such, a trade-off is implicitly required between the accessibility of healthcare providers and care continuity, defined as the "ongoing therapeutic relationship between a patient and one or more providers" (Freeman and Hjortdahl 1997; Starfield 1998). Indeed, recent studies have found that providing open-access scheduling similar to that offered by urgent care centers reduces the continuity of care between patients and their usual physician (Phan and Brown 2009).

Continuity of care is widely regarded as one of the most crucial drivers of care quality, and has been linked to a plethora of positive outcomes. Studies have found that patients who have a strong relationship with a regular primary care provider are significantly more likely to undertake preventative health screenings (i.e. pap smears and mammograms) (Ettner 1996), follow medical advice (i.e. smoking cessation, exercise, dietary advice) (Campbell, Roland, and Beutow 2000), and have lower chances of developing complications from chronic health conditions (i.e. stroke, congestive heart failure in hypertensive patients) (Mainous et al. 2004). Relational continuity is also associated with increased patient satisfaction as well as increased confidence and trust in the medical provider (Kao et al. 1998; Gabel, Lucas, Westbury 1993). Finally, patients who see the same doctor have been found to have fewer and shorter hospitalization, fewer duplicate diagnostic tests, and fewer operations than counterparts without a usual source of care (Sweeny and Gray 1995; Raddish, Horn, Sharkey 1999). Convenient ambulatory care, with its episodic nature, poses the risk of fragmenting and disrupting such relationships, reducing the continuity of care, and ultimately increasing the cost and lowering the quality of care.

These deleterious effects on relational continuity could be mitigated partially through advances in informational continuity. Informational continuity is defined as "the use of information on past events and personal circumstances to make current care appropriate for each individual" (CITATION). For patients with a usual source of care, having strong channels to share information between urgent care and primary care can help the coordination of patient care, hence reducing the potential for duplicated care. Meanwhile for patients without a usual source of care, referral relationships between urgent care and primary care has the potential to introduce otherwise unconnected patients into the health care system.

For my dissertation, I propose to explore these issues in greater depth by developing and testing a conceptual model of organizational coordination between urgent care and other ambulatory care sites. The conceptual model is based on organizational predictions about the environmental, organizational,

and individual factors that facilitate or inhibit urgent care centers from sharing information with and making referrals to outside providers. I propose to write three papers toward this end:

- (1) The first paper will test the conceptual framework empirically by comparing information sharing and referral activities of urgent care centers. Data for this paper will be collected through a survey that will be administered to urgent care centers across New York State.
- (2) The second paper will apply the conceptual framework to a national context by comparing information sharing and referral activities of urgent care centers and other ambulatory care sites such as private office based practices, community health centers, health maintenance organizations, and academic medical centers nationally. Data for this paper will be gleaned through National Electronic Health Records Survey (NEHR) from 2012-2013.
- (3) The third paper will couch the urgent care within the larger debate around convenient ambulatory care, which also includes the retail clinic model. This third paper summarizes the evidence around the impact of urgent care and retail clinics on the larger health system, outlines existing standards and regulations on convenient ambulatory care, and lays out key policy considerations to consider.

This research is timely in light of current discussions underway in New York and around the nation surrounding the re-design of ambulatory care regulations, including changes to policies around urgent care center practice. Many of the proposed delivery system reforms such as the patient-centered-medical-homes and advanced-primary-care encourage primary care physicians to improve care coordination. However, much less attention has been placed on care coordination for patients in non-traditional settings. As healthcare coverage continues to expand, there will be a growing need to understand how care is coordinated across all care sites of care. Through this dissertation research, I hope to inform policymakers as they continue to tackle the ongoing challenge of balancing support for the potential positive contributions of urgent care with the essential protections patients require for high-quality, coordinated care.

In Section II, I provide the background and policy context for this research, discuss the research problem in depth, and present the research questions. In Section III I introduce and discuss the literature in greater depth, introduce the conceptual framework, and outline the hypotheses of the study. In Section IV I present the research methods for the three studies including identifying the variables in the research design, presenting the population and sample, describing the data collection methods, specifying the estimation model to be used in the analysis, and discussing the limitations of the research. Finally in Section V I present a preliminary timeline to follow for the timely completion of this research.

CONTEXT AND RESEARCH QUESTIONS

URGENT CARE LANDSCAPE AND SCOPE OF PRACTICE

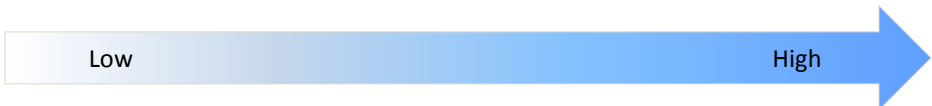
Urgent care centers (UCCs) are a relatively new site of ambulatory care that has grown steadily over the last few decades. The first UCCs opened in the 1970s as an annex of physician practices that offered

extended hours and targeted acute but not emergent care (Cockrell, Walsh, and McCormick 2013). Throughout the 1980s urgent care was viewed as a disruptive innovation that could render hospital emergency departments “vulnerable to replacement” (Goldsmith 1980) due in part to the lower cost structure associated with specializing in a narrower range of services than emergency departments. While those predictions did not occur, UCCs proliferated across the U.S. throughout the 1990s and 2000s and have continued to grow into the current decade.

Because federal registration is not required, the estimates of the number of UCCs vary widely, ranging between 4,000 and 20,000 across the U.S. (Merchant Medicine 2014; Weinick and Betancourt 2007). The most frequently cited figure, based on the membership-based Urgent Care Association of America (UCAOA) hovers at around 6,400 centers. Part of the reason for the discrepancy is that there is no single nationally accepted definition of what an urgent care center is or what the scope of services should be. The broadest definition of urgent care, as defined by the UCAOA, is “healthcare provided on a walk-in, no-appointment basis for acute illness or injury that is not life or limb threatening, and is either beyond the scope or availability of the typical primary care practice or retail clinic” (UCAOA 2011).

In general, the scope of services and acuity of conditions treated at UCCs fall between those of a primary care provider (PCP) and an emergency department (ED). However, often, the lines between these facilities are blurred, due in part to the overlapping scope of services delivered across the sites of care (see table 1 below). While ongoing care isn’t within their avowed scope of practice, more than half of UCCs often offer treatments and services they considered to be primary care and nearly two-thirds offer routine immunizations (Weinick, Bristol, and DesRoches 2009b). Unlike emergency departments, UCCs are generally not equipped to deal with trauma, resuscitation, or other life threatening conditions, and are not open 24/7 (Yee et al. 2013). Furthermore, almost all UCCs are staffed by primary care and/or emergency physicians and approximately half employ physician assistants and nurse practitioners as additional providers (Weinick, Bristol, and DesRoches 2009a, 2009b).

TABLE 1: TYPOLOGY OF SELECT AMBULATORY CARE

	Primary Care	Urgent Care	Emergency Department
Level of Acuity of Condition			
Scope of Services	Health promotion, disease prevention, health maintenance, counseling, patient education, diagnosis and treatment of acute and chronic illnesses.	Acute care services similar to those provided by primary care as well as minor fractures and lacerations. Emphasis on episodic care; not intended for long-term management of chronic conditions.	Extensive and highly specialized care for all levels of acuity. Often includes fast-track for the treatment of lower-acuity conditions.

Service Delivery Hours and Approach	Typically open during regular business hours and on an appointment-basis (although moving toward walk-in services)	Typically open during regular business hours as well as evenings and weekends. Services provided primarily on a walk-in basis.	Open 24/7. Services provided on a walk-in basis.
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POLICY CONTEXT AND RESEARCH QUESTIONS

In most states, retail clinics and urgent care centers are treated as private physician practices, subject to professional regulation by state medical boards. However, a growing number of states are considering legislation specific to urgent care and retail clinic practice. In 2013, New York State began deliberations for the comprehensive oversight of ambulatory care, including developing a framework to regulate new settings of outpatient care delivery such as urgent care centers. Much of this discussion focused on whether New York’s policymakers should take a stronger regulatory stance to limit the growth of new ambulatory care sites, or take a laissez faire approach until more is known about their performance (Chokshi, Rugge, and Shah 2014). Over the course of one year, the Public Health and Health Planning Council (PHPPC) drafted a set of recommendations to the state legislature around urgent care operations including clarifying and distinguishing urgent care scope of services, the definition of what an urgent care provider is, naming conventions and requirements for consumer disclosure, approval to be called an “urgent care” provider, accreditation, minimum health information technology use, and relationship with primary care providers.

These recommendations flowed from the premise that high quality ambulatory care “depends on the bedrock of excellent primary care” and that continuity of care, particularly with patients’ primary care practices, should be preserved and promoted (PHHPC 2014). Specific recommendations for preserving the continuity of care included those around referrals and information sharing. For referrals, urgent care centers were recommended to have policies and procedures for referring patients whose needs exceed services, and to maintain and provide a roster of PCPs in the area that are accepting new patients to those patients without a primary care provider. For information sharing, PHHPC recommended that urgent care centers be required to utilize certified electronic health records to share information to all authorized clinicians in interoperable systems (*see table 2 below*).

TABLE 2: PHPPC CARE COORDINATION RECOMMENDATIONS

Section	Recommendations
Patient Safety, Quality and Accreditation	Require policies and procedures for referring patients whose needs exceed services provided and to ensure continuity of care.
Stabilization of the Medical Home	Provide a roster of primary care providers accepting new patients indicating that they do not have a primary care provider. The list must identify preferred providers who have achieved recognition as a Patient Centered Medical Home (PCMH) or other designation, and a description of what the designation means.
Health Information Technology	Require utilization of a certified electronic health record for sharing of patient information to all authorized clinicians and participation in interoperable systems, as

	<p>deemed appropriate by the Department.</p> <p>Provide a copy of medical records to the patient consistent with current Public Health Law.</p>
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(Source: PHPPC 2014)

Although there are no nationally enforced standards for urgent care practice, the PHHPC recommendations align with best practices for urgent care transitions as set forth in the Joint Commission Journal on Quality and Patient Safety (Shamji 2014). For example, the Best Practices for Safe Care Transitions include recommendations that urgent care centers should identify and record information about the patient’s PCP and send summary clinical information within 24 hours to the PCP upon visit completion. The information should include “the medical diagnosis, updated medication list, results of tests, pending tests, name of the urgent care clinician, phone number to call if more information is needed, discharge instructions, and recommended follow up” (Shamji 2014; p. 322).

These recommendations are also align with voluntary quality standards for accreditation set forth by the Joint Commission, UCAOA, the American Academy of Urgent Care Medicine (AAUCM), all of which require urgent care practices to have processes in place for referrals in order to receive full accreditation¹. Earlier this year, the National Committee for Quality Assurance also announced the launch of its “Patient-Centered Connected Care” program for outpatient health care clinics that “communicate effectively with a patient’s other providers – especially primary care providers that constitute a patient’s medical home.” The newly minted accreditation program evaluates how providers in non-traditional settings such as retail clinics and urgent care centers supports patients’ health by “connecting them to the right resources, at the right time” and investing in efforts to increase the continuity of care (NCQA 2014).

Continuity of care has been described as a “Triple Aim home run,” helping bring about better health, improved health care quality, and lower costs (Gupta and Bodenheimer 2013). Numerous studies have found that increased continuity of care is associated with decreased utilization including hospitalization and emergency visits, as well as improved patient satisfaction, communication, and trust (see Walraven et al. 2010 and Haggerty et al. 2004 for a review). The recent recommendations by PHPPC have the potential to increase the continuity of care by connecting the episodic care received at urgent care centers into the larger care delivery system. Referrals encourage continuity of care by connecting patients to a usual source of care. Meanwhile, shared information through electronic health record systems increases informational continuity by making knowledge about a patient’s clinical history available to all health care professionals (Macphail et al. 2009).

However, while bolstering continuity, adopting the recommendations will also pose substantial implementation and coordination costs, both for urgent care operators as well as those they are coordinating with. Maintaining updated lists of primary care providers and specialists who are receiving referrals is a time-consuming endeavor, and sharing patient records electronically not only requires the

¹ I have yet to obtain the full standards manuals from the UCAOA and Joint Commission and will develop a table of standards once that information becomes available.

physical systems to perform the task but also inter-operability of electronic medical record systems across organizational walls. These costs are likely to weigh more heavily on some urgent care centers than others, and imposing regulatory standards may lead to unintended consequences. For example, small, privately owned practices may not have the capacity/scale to maintain referral lists and EHR systems, and may ultimately face higher closure rates than larger practices that are integrated into larger networks. If these small practices locate disproportionately in certain locations (i.e. underserved areas), implementing the PHHPC recommendations may result in reduced access for care for certain segments of the population.

These unintended consequences remain unexplored as no national or state body currently oversees or collects information about the quality of care and practices at urgent care centers, and very little research has been conducted on the topic. One exception is the survey-based study of integrative practices of urgent care centers published in the UCAOA's Journal of Urgent Care Medicine. In this paper, researchers surveyed 436 urgent care centers across the U.S. and found variation in coordinating activities across urgent care systems (Weinick et al. 2009). In terms of referral practices, researchers found that the vast majority of urgent care centers maintain a list of PCPs and specialty physicians to whom they can refer patients (85.7% and 95% respectively), while the remainder do not maintain such lists. Meanwhile, in regards to post-visit follow-up, urgent care centers were found to take a variety of approaches including doing nothing, sending a copy of the chart to a regular physician, sending a consult note to a regular physician, or calling a regular physician. Notably about a third of urgent care centers (33.4%) did nothing to engage in inter-organizational coordinating activities. While informative, the study is limited in that it is purely descriptive and does not provide insight into what causes variation in urgent care practices, and ultimately very little is known about the factors that influence the propensity or willingness to engage in inter-organizational care coordination activities.

As of 2015, none of PHHPC's recommendations have been adopted legislatively. However, these issues were raised again in the 2015-2016 New York State Executive Budget, including proposals requiring PHHPC and the Commissioner of Health to adopt rules and regulations relating to urgent care centers. As policy-makers consider the regulatory options for urgent care centers, there is an impending need for more research around the urgent care landscape, the current practices at urgent care centers, as well as the barriers and facilitators to implementing the recommended coordination activities.

To date, no such study of UCCs has been conducted, and the aim of this dissertation is to fill in gaps in knowledge by addressing three related questions around the coordination of care between urgent care and traditional ambulatory care sites:

1. *What environmental, organizational, and individual factors are associated with an urgent care center's propensity to make referrals for those unconnected to care and share information about patients with other providers?*
2. *Are urgent care centers more or less likely to make referrals and share information electronically with other providers than other ambulatory care sites (private office based practice, community health center, health maintenance organization, faculty practice plan)?*

3. *What does the literature say about the impact of convenient ambulatory care on cost, quality, access, patient navigation, and continuity, and what industry standards and regulations guide urgent care center and retail clinic practice?*

The first question assesses the extent to which urgent care centers in New York are prepared for practice change that may be required under the PHPPC recommendations. By narrowing in on the specific recommended activities as the main outcome variable of interest, this study aims to provide practical insights for policymakers as they consider implementing standards of practice for urgent care centers across New York State. Knowledge gained from this study may help policy-makers target specific groups of urgent care centers for reform, or identify targeted policy-levers to help urgent care centers implement the recommended practices for coordination.

The second question compares referral and information sharing practices at urgent care centers with other ambulatory care sites. To the best of my knowledge no study to date has compared practices encouraging continuity at urgent care centers to other ambulatory care settings. This is an important knowledge gap to bridge as urgent care centers continue to proliferate and policymakers in several states consider legislation specific to urgent care practice. Findings from this study may help policymakers determine whether specific regulations around urgent care would be necessary to implement.

The third question provides insight into the field by outlining the policies currently being considered by the industry and by state regulators as well as the evidence behind arguments both for and against urgent care growth. While separate viewpoint papers and technical reports have been published on the topic, no paper to date has addressed the issues, the evidence, and policies surrounding both urgent care and retail clinics in concert.

CONCEPTUAL FRAMEWORK

CARE COORDINATION

Care coordination is a complex concept that means different things to different people. According to the Agency for Healthcare Research and Quality, coordination of care is “the deliberate organization of patient care activities between 2 or more participants... involved in a patient’s care to facilitate the appropriate delivery of health care services” (AHRQ 2014). For patients, care coordination is manifested in the activities taken to help ensure their care needs and preferences for health services are met across providers, sites, and time. For health care professionals, care coordination includes all of the activities designed to assess and meet the needs of and preferences of patients.

Care coordination is influenced by but is conceptually distinct from the continuity of care, which is defined as “degree to which a series of discrete healthcare events is experienced as coherent and connected and consisted with the patient’s medical needs and personal context” (Haggerty et al. 2003). Coordination structures encourage the experience of continuity, and continuity in turn facilitates the coordination of care (Chen and Ayanian 2014).

Many studies have already illustrated the positive impact of care coordination on the quality and efficiency of patient care delivery (Gittell 2000; Shortell et al. 1994; Argote 1982) particularly for patients with chronic illnesses. In these studies, care coordination is conceptualized an input or process variable, and the aim is to understand how variation in coordination leads to variation in other outcomes of interest such as cost, quality of efficiency of care delivery. In the present study, care coordination is seen as an outcome valued in itself, and the central goal is to understand the factors that contribute to (or detract from) the adoption of practices encouraging the coordination of care between urgent care centers and other ambulatory care organizations.

Care coordination “involves the marshalling of personnel and other resources needed to carry out all required patient care activities and is often managed by the exchange of information among participants responsible for different aspects of care” (MacDonald et al. 2007). For the purposes of this study, care coordination is conceptualized narrowly as the adoption of two specific practices: (1) having process in place to refer unconnected patients to other providers, including longitudinal care (i.e. PCP) and follow-up care (i.e. specialists) (2) having processes in place to share information with other providers post-visit for patients with a usual source of care.

Implementing these practices will likely impose substantial costs through investments in technologies and dedicated staff time - maintaining and providing referral lists involves dedicating resources to build relationships with outside providers and keeping updated information about the availability of these providers; ensuring post-visit information exchange requires taking time to identify patients with a usual source of care, finding the current contact information for the patients’ primary care providers, and making sure the information is received by the primary care provider.

In part due to these costs, there is variation in the extent to which urgent care centers will be willing to invest in inter-organizational coordination. I aim to identify the factors that contribute to this variation by relying on insights about coordination gleaned from the organizational theory literature.

COORDINATION IN AND ACROSS ORGANIZATIONS

Although no overarching theory of coordination currently exists, the processes, mechanisms, and antecedents of coordination have been studied extensively across various theoretical traditions, contexts, systems, and academic disciplines, including economics, political science, biology, psychology, computer science, and management (Hood, 2005; Okhuysen and Bechkey 2009; Sinha and Van de Ven 2005). Within the organizational literature, coordination has been broadly defined as the management of dependencies across activities (Malone and Crowstone, 1994; see Okhuysen and Bechkey 2009 for a review of definitions).

Coordination occurs both within organizations (intra-organizational coordination) and across organizations (inter-organizational coordination), and most organizations engage in both forms of coordination (Gittell and Weiss 2004; Alexander 1993). However, coordination is costly to implement. From a focal organization’s point of view, engaging in inter-organizational coordination in particular implies the loss of some freedom to act independently, as well as the investment of scarce resources to

maintain relationships with other organizations even when the potential returns on investments are not guaranteed (Van de Ven 1978). Organizational theorists argue that organizations strive to maintain their autonomy and hence would prefer not to engage in inter-organizational relationships unless they are compelled to do so (Gouldner 1959).

Classical perspectives from organizational theory suggest that one such compelling reason may be to increase the efficiency of work processes through the management of task-interdependence. Interdependence refers to the “extent to which the items or elements upon which work is performed or the work processes themselves are interrelated so that the changes in the state of one element affect the state of the others” (Scott and Davis 2007: 126-127). Interdependence is divided into three levels, each with its optimal type of coordinating mechanism (Thompson, 1967): (1) pooled interdependence is the lowest level, and represents work that is interrelated only to the extent that each element or process contributes to the overall goal. Each part renders a discrete contribution to the whole, and thus the failure of any one part can threaten the whole. Pooled interdependencies are managed through coordination by standardization, where the action of each unit or part is constrained through routines or rules. (2) Sequential interdependence exists when the order of activities performed matters. Implicitly sequential interdependence is inclusive of pooled interdependence and exhibits a higher level of technological uncertainty. Sequential interdependencies are recommended to be managed through coordination by plan, where schedules are established for interdependent units by which their actions may then be governed. (3) Reciprocal interdependence is the highest level and refers to the situations in which the outputs of each process become inputs for others, and hence each unit poses a contingency for the other. Reciprocal interdependence is inclusive of both pooled and sequential interdependence and exhibits the highest level of technological uncertainty. Reciprocal interdependence is recommended to be addressed through coordination by mutual adjustment or feedback, where new information is shared during the process of action. It is expected that the more variable and unpredictable the situation, the greater there will be reliance on coordination by mutual adjustment (Argote 1982). According to Thompson’s scale, complexity increases from pooled to sequential to reciprocal, and the types of interdependencies become more difficult and costly to coordinate in that order.

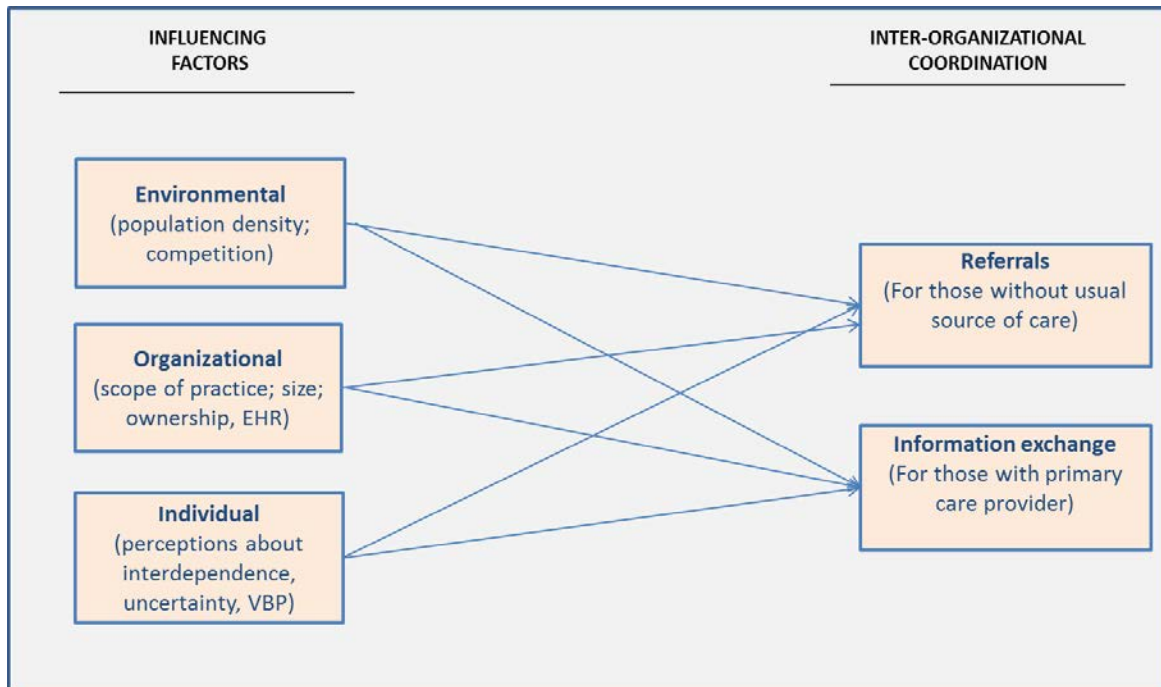
Applying this tiered model to the health care delivery context suggests that patients bring about different levels interdependencies and that different types of mechanisms are required for optimal coordination. For example, patients with multiple chronic conditions have needs that cut across a spectrum of medical health and often behavioral health and social supports and services. These patients bring about the highest level of uncertainty and force providers to be reciprocally interdependent since the actions and outputs of any one of these providers immediately poses contingencies for another sector in providing care. In contrast, the interdependencies among providers dealing with acute-care patients – such as those typically treated at urgent care centers - are usually pooled so that the optimal approach would be to use standardized rules or routines. The two recommendations for coordination (referrals and information exchange) is an efficient response to managing these interdependencies across the different sites of care.

However, while the recommendations for coordination make rational sense from a system-level perspective, what's less clear is how they are accepted from the vantage point of a single provider. Urgent care centers are designed to be one-stop-shops for minor acute care, and by the nature of this work, outside providers have little bearing on the actual delivery of care for each episode of care. The successful delivery of a single episode of acute care depends more on how well the urgent care team works together rather than coordinating with outside providers, and hence urgent care centers are likely to experience high intra-organizational interdependence and low inter-organizational interdependence. Since most urgent care service are paid for on a fee-for-service basis, and since the development and maintenance of inter-organizational relationships is costly, the question then becomes why some urgent care centers would invest in mechanisms for inter-organizational coordination when it does little to directly improve the efficiency of its organizational tasks.

RESOURCE DEPENDENCE AND TRANSACTION COST ECONOMICS CONCEPTUAL FRAMEWORK

To answer this question, I develop a conceptual framework based on the resource dependence and transaction cost economics (TCE) models of organizational theory. Both resource dependence and transaction cost economics perspectives view organizations as part of open systems, or “components in larger systems of relations... open to and dependent on flows of personnel, resources, and information from the outside” (Scott and Davis 2005 p. 31). An open system perspective points to the significance of the wider environment on the survival of the organization, and suggests that in order to understand the operations of an organizational system, it is critical to examine both the factors outside the system of interest as well as inside of its boundaries (*See figure 1 below*).

FIGURE 1: CONCEPTUAL FRAMEWORK



Resource dependence builds on this premise that all organizations are embedded in networks of interdependencies and social relations, and further posits that organizations seek to manage these interdependencies by engaging in exchange relationships with external organizations that control access to critical resources (Cook 1977; Pfeffer 1972; Pfeffer and Salancik 1978). An inter-organizational relationship occurs when two or more organizations exchange resources (i.e. client referrals, staff, funding) among each other. If organizations were self-sustaining entities, there would be little need for inter-organizational analysis (Van de Ven 1978; Rossignoli and Ricciardi 2015).

Three ideas are central to this perspective (1) social context matters (2) organizations have strategies at their disposal to enhance their autonomy and (3) power – not just efficiency – is critical to understanding the actions of organizations (Davis and Cobb 2014). The greater the dependence of an organization on other organizations, the less power the organization has over its environment, and greater the uncertainty faced by the focal organization (Farnsworth and Shay 2014). Organizations prefer certain and more predictable environments to uncertain ones, and much of what organizations do is driven by a desire to reduce uncertainty and dependence while maintaining autonomy (Scott and Davis 2007).

According to resource dependence theory, uncertainty in the environment can be attributed to several factors including the scarcity of resources, competition, unpredictability of environmental changes, and control of critical resources by other organizations (Rossignoli and Ricciardi 2015). Organizations have a number of strategies at their disposal to reduce uncertainty in their environment, including to grow in size (i.e. become “too big to fail”) or to enter into or restructure exchange relations with other organizations (Pfeffer and Salancik 1978). All else being equal, organizations are expected to choose the least constraining approach to coordinate relations with other organizations and to reduce the dependence created by these exchanges (Pfeffer and Salancik 2003; Thompson 1967).

Meanwhile, the central claim of the transaction cost economics approach is that transactions are costly and that organizations structure their relationships in such a way to minimize the costs involved in carrying them out (Williamson 1991). A transaction occurs when “a good or service is transferred across a technically separable interface” (Williamson, 1981 p.552). Transaction costs, also known as coordination costs, refer to “all of the information processing necessary to coordinate the work of people and machines that perform the primary processes” (Williamson 1975). From this perspective, referrals and information exchange can both be seen as transactions between multiple providers working on the same technology (patient).

According to TCE, there is a range of governance structures that trading partners can choose from, on a spectrum from the pure anonymous spot market to the fully integrated firm/hierarchy. Each institutional arrangement carries with it specific associated costs that vary by the characteristic of the underlying transaction. Transactions vary in its degree of frequency, uncertainty, and asset specificity. The key insight of TCE is that in a world of positive transaction costs, exchange relationships need to be governed, and that the most efficient form of governance is contingent on the transaction being governed (Macher and Richman 2008).

HYPOTHESES

The resource dependence and transaction cost economics perspectives offer several suppositions about the environmental, organizational, and individual factors that are likely to influence inter-organizational coordination.

First, based on resource dependence theory, urgent care centers will coordinate with external organizations to the extent that they are dependent on the environment for key resources. One resource critical to the survival of urgent care centers is patients. By entering into referral and information exchange relationships with primary care providers in the area, urgent care centers can stabilize the flow of patients to their clinic and hence reduce uncertainty. Two environmental factors are likely to influence the extent to which an urgent care center is dependent on other providers to secure the flow of patients: population density and competition from other urgent care centers in the area. High population density translates to a larger pool of potential patients and less dependence on other providers for referrals. Urgent care centers operating in areas with low population density face low resource munificence, and are hence predicted to be more likely to coordinate care with primary care providers to secure referrals. Similarly, competition from other urgent care centers in the environment reduces the pool of patients available, and is predicted to influence the decision to enter into cooperative relationships with primary care providers in the area, such that urgent care centers operating in a highly competitive environment will be more likely to coordinate care.

H1: Urgent care centers operating in areas with low population density will be more likely to engage in referral and information exchange practices than counterparts operating in environments with high population density.

H2: Urgent care centers operating in areas with a larger number of urgent care centers will be more likely to engage in referral and information exchange practices than counterparts operating in environments with fewer competitors.

Resource dependence also predicts the effect of individual perceptions on organizational practices. Prior research found that top managers' perceptions about uncertainty in the external environment are positively associated with an increase in mergers and acquisitions (Pfeffer 1997). Similarly, leaders' perceptions of dependence on others for resources were found to spur the development of inter-organizational relationships among child care and health organizations (Van de Ven and Walker 1984). As of January 2015, the PHPPC recommendations have not been accepted as legislation and uncertainties exist surrounding the regulation of ambulatory care across New York. Furthermore, uncertainties exist around the future of payment reform in the state. The movement toward value-based payment model signifies an era of greater interdependence with other providers, which is likely to encourage providers to form or strengthen relationships outside their boundaries. Therefore, I hypothesize that both the perceived environmental uncertainty and perceived interdependence with other providers, as well as perceptions about the shift toward value-based payment models in the state, will be related to greater propensity to engage in inter-organizational coordination by urgent care providers.

H3: The greater the perceived uncertainty by urgent care operators the more likely to engage in referral and information exchange practices.

H4: The greater the perceived interdependence by urgent care operators, the more likely to engage in referral and information exchange practices.

H5: The greater the perception that value-based payments will grow in the future, the more likely urgent care centers are to engage in referral and information exchange practices.

At the organizational level, resource dependence theory also predicts several structural variables that are likely to influence the propensity for urgent care centers to enter into coordinating relationships with outside providers. In addition to dependence for patients, urgent care centers are dependent on their environment for task-related resources such as specialized skills, equipment, and staffing. The larger the urgent care center and the wider the scope of practices offered in-house, the less an urgent care will be beholden to the external control of these resources. Therefore from a resource dependence perspective, size and scope of practice is predicted to be negatively related to participation in inter-organizational coordination activities. The same predictions apply to the size of the urgent care chain, such that the larger the chain, the less dependent the associated urgent care centers are on external organizations.

H6a: The larger the urgent care center, the less likely it is to engage in referral and information exchange practices with external organizations.

H6b: For urgent care centers that are part of chains, the larger the urgent care chain, the less likely it is to engage in referral and information exchange practices with external organizations

H7: The larger the scope of services offered at an urgent care center, the less likely it is to engage in referral and information exchange practices with external organizations

In addition, coordination practices are likely to be influenced by the ownership structure, and both resource dependence and transaction cost economics make predictions about the influence of ownership structure on organizational practice.

Broadly three types of models exist for urgent care centers: those that are integrated into health systems; those that are part of a chain of urgent care centers; and those that are owned and operated as individual practices. (see Table 3 below) This difference in ownership shapes the interface between the organization and its environment in idiosyncratic ways. For health-system owned urgent care centers, the organizational boundaries with primary care become blurred as the two essentially become subunits of one vertically integrated system. Hence, from a resource dependence perspective, interdependence with providers in-network will increase while interdependence with out-of-network providers inevitably weaken. Similarly, coordination costs with in-network providers will decrease due to the use of common communications platforms (i.e. shared EHR systems). Meanwhile, out-of-network providers will be considered direct competitors, hence reducing the propensity to coordinate.

TABLE 3: URGENT CARE CENTER MODELS

	Health System	Urgent Care Chain	Independent
Description	Owned and operated by group practices or large health systems	Part of a chain of centers specializing in urgent care	Individual center associated with neither a health system nor a chain of urgent care centers; typically owned by physicians
Example	Hudson Headwaters Health Centers	CityMD	Atlantic Urgent Care
Coordination and Integration	Potential for high integration within health system but concerns exist re coordination with out-of-network providers	Often acts as a “Switzerland” vis-à-vis health care systems; possesses the scale to develop platforms that help coordinate with other providers	Potential difficulties coordinating care with outside providers; may not possess scale to maintain and update lists and contact information for referrals

From a TCE perspective, a transaction occurs when “a good or service is transferred across a technically separable interface” (Williamson, 1981 p.552). Costs associated with transactions vary depending on the type of “governance structures” between the trading partners. These governance structures range from the pure, anonymous spot market, to combined ownership in a fully integrated firm or hierarchy. Transaction cost economics posits that hierarchies, such as those of vertically-integrated urgent care centers – provide relatively efficient mechanisms for the coordination of frequently occurring transactions. Meanwhile, chain-based organizations are more likely than individual practices to possess the scale to invest in communications and coordination systems (i.e. electronic health record systems), which will lower the cost of inter-organizational coordination (through economies of scale) and hence increase the propensity to coordinate. For these organizations, the transaction cost of referrals and information exchange is likely to be reduced. Furthermore, best practices are also likely to travel more quickly through chains because of its scale and specialized focus specifically on the delivery of urgent care. Taken together, the ownership structure of urgent care centers are expected to influence coordination mechanisms in the following ways:

H6: Vertically integrated systems will be more likely to be in referral and information exchange within its network than non-integrated systems, but will be less likely to be in a referral and information exchange relationships with outside providers.

H7: Chain-based ownership urgent care centers will be more likely to be in referral and information exchange relationships than non-chain-based organizations.

A related variable likely to influence referral and information exchange practices is the utilization of electronic medical records (EMR). EMRs have long been recognized as means to coordinate care by reducing the costs of information exchange. According to one estimate, EMR implementation and networking could save more than \$81 billion annually by reducing duplicate care and improving care

coordination (Hillestad et al. 2005). Although inter-operability across EMR systems pose a significant barrier to informational continuity, the presence and use of electronic medical records systems is expected to reduce the burden of coordination and information exchange by lowering the transaction cost associated with each exchange. For example, organizations that use EMR systems can collect information about a patient's PCP during one visit and refer back to that information during future visits. Therefore, transaction cost economics predicts that organizations that utilize electronic medical records are also more likely to engage in referral and information exchange practices.

H10: Urgent care centers that utilize electronic medical records will be more likely to engage in referral and information exchange practices with external organizations.

However, the adoption of electronic health systems is also likely to be influenced by the same individual, organizational, and environmental variables affecting coordination practices. For example, organizations that perceive greater uncertainty in the environment is more likely to invest in electronic medical records systems. Furthermore, organizations that are part of larger chains or integrated health systems are more likely to have adopted medical records systems due to economies of scale. Therefore, the utilization of electronic medical records is expected to interact with the other variables in the model such that the EMR use will partially mediate the relationship between the other variables and interorganizational coordination.

H11: Electronic medical record usage partially mediates the relationships between organizational, individual, and environmental variables, and interorganizational coordination.

Taken together, the hypotheses form the following conceptual model.

FIGURE 2: CONCEPTUAL MODEL AND HYPOTHESES

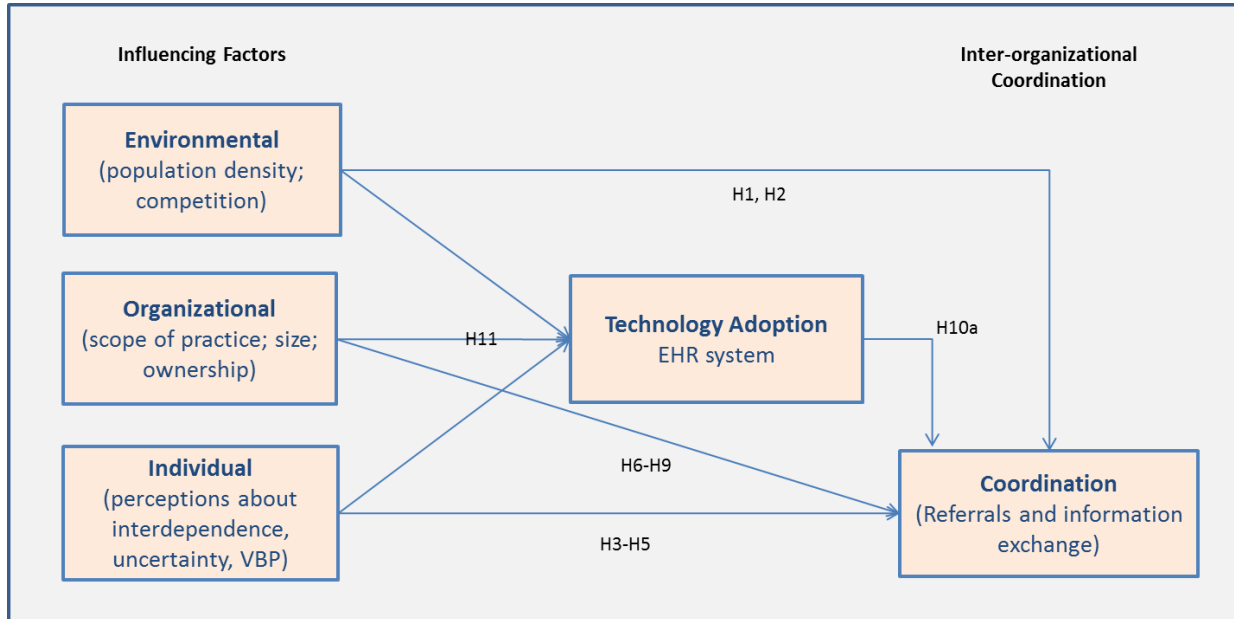


TABLE 4: HYPOTHESES LIST

	Variable	Type	Relationship
H1	Population Density	Environmental	Positive
H2	Competition	Environmental	Positive
H3	Uncertainty	Individual	Positive
H4	Interdependence	Individual	Positive
H5	Value-based Payments Perceptions	Individual	Positive
H6A	Size (individual)	Organizational	Negative
H6B	Size (chain-based)	Organizational	Negative
H7	Scope of Practice	Organizational	Negative
H8	Vertical Integration	Organizational	Negative
H9	Chain Based	Organizational	Positive
H10	EMR Utilization	Organizational	Positive
H11	EMR Mediation	Organizational	Mediating

RESEARCH METHODS AND PAPERS

To test these hypotheses and to address the three broad research questions around urgent care practices, I propose to conduct three studies of urgent care centers. The first will be based on data collected through a survey of urgent care centers in New York. The second study will be based on the National Electronic Health Records Survey (NEHRs) data collected by the Centers for Disease Control and Prevention. The third study will be based on interviews with urgent care center and retail clinic operators, policymakers, and industry representatives, as well as a review of the literature and a state-by-state search of legislation. The methods for each of the three papers are discussed separately below.

PAPER 1: SURVEY OF URGENT CARE CENTERS IN NEW YORK

The first study addresses the question: *What environmental, organizational, and individual factors are associated with an urgent care center's propensity to make referrals for those unconnected to care and share information about patients with other providers?* I plan to address this question by conducting a survey of urgent care centers in New York State.

POPULATION AND SAMPLING

There are significant differences across states regarding the regulation of urgent care centers related to differences in corporate practice of medicine laws that influence the ownership and management of urgent care centers (Cockrell, Walsh, and McCormick 2013). Some states allow urgent care facilities to operate as physician practices while others have specific licensure, registration, or accreditation requirements surrounding urgent care practice. Because of these differences in regulatory policies, I have narrowed the scope of research for the first study to one state, New York, in order to control for state-level policy variations that may influence the operational activities of urgent care centers across state boundaries.

I selected New York because ongoing debates surrounding the redesign of ambulatory care delivery within the state create a pressing need for research on local urgent care practices (see discussion in Section II). Although the sampling frame is limited to clinics in New York, lessons learned from this context may also help policymakers in other states as they consider regulations for urgent care centers in their state.

No current census of urgent care centers in New York was available as of October 2014. Therefore, between October and December 2014, I developed a comprehensive census by obtaining the names and addresses of urgent care centers in the state from three separate sources: The Urgent Care Association of America membership directory; The American Academy of Urgent Care Medicine membership directory; and the directory of urgent care from Merchant Medicine (*see table 5 below*).

TABLE 5: CENSUS DATA SOURCE

Data Source	Item Type	Description
The American Academy of Urgent Care Medicine (AAUCM)	Census Address	The AAUCM is a national organization representing providers who practice urgent care medicine. The New York State clinic directory containing the names and addresses of 322 urgent care practices was purchased directly from the AAUCM
Merchant Medicine	Census Address	Merchant Medicine is a consulting and research firm in the field of walk-in medicine. The directory of urgent care centers in New York containing 282 clinics, including those that have not yet opened, was purchased directly from Merchant Medicine.
Urgent Care Association of America (UCAOA)	Census Address	The Urgent Care Association of America is a membership organization representing professionals working in urgent care centers around the world. The directory of urgent care centers in New York included 363 centers, and was accessed through the UCAOA website.

After combining all of the addresses from these sources, duplicates were removed as significant overlap existed across the three directories. For those organizations that were part of a group or chain of urgent care practices, I further identified additional clinics based on information obtained from websites.

The selection criteria for inclusion on the census were based on two conditions: (1) UCCs that are currently open or operating and (2) UCCs that fit the definition of an urgent care center set forth by the UCAOA². For the first criteria, I excluded those organizations that did not have any web presence or a working phone number. For the second criteria, I drew on the typology of ambulatory care (table 1) by excluding sites that were identified primarily as a primary care office or multi-specialty practice (including those that allowed walk-in care) as well as emergency departments (including free-standing, full-service, and fast-track). Furthermore, consistent with the definition of an urgent care center as providing convenient care, I excluded those centers that did not offer any extended hours in the evening or weekends. This process was conducted by obtaining information from the company’s website, or for those without a web presence, contacting the urgent care center via phone.

This process yielded a total of 366 confirmed urgent care centers in the state. These confirmed urgent care centers will be the target population for the survey.

DATA COLLECTION

Data for this study will be come from three sources:

- (1) A survey of urgent care centers in New York State
- (2) The U.S. Census (2010)
- (3) The Health Resources and Services Administration Health Professional Shortage Area Designation (2014)

The survey is expected to be between 10-15 minutes long and will be administered to the entire population of urgent care centers to test the hypotheses about the determinants of inter-organizational coordination. Population data from the U.S. Census will be used to determine the population density variable. The HRSA data will be used for the variable indicating whether the UCC is located in a primary care health professional shortage area. The key concepts, variables, and data sources for the study are summarized in Table 6 below:

TABLE 6: PAPER 1 KEY CONCEPTS, VARIABLES, AND DATA SOURCES

Concept	Data Source	Description
Environmental Determinants		
Population Density	U.S. Census	Population per square mile within the census track where the urgent care center is located.
Competition	GIS Mapping and survey	The number of urgent care centers within a variable distance radius of the focal urgent care center ³

² UCCs are defined as “healthcare provided on a walk-in, no-appointment basis for acute illness or injury that is not life or limb threatening, and is either beyond the scope or availability of the typical primary care practice or retail clinic” (UCAOA 2011)

³ Various methods have been used to competition including variable distance radii to capture the radius from which 90% of patients visit.

Organizational Determinants		
Scope of practice	Survey	Scope of practice will be divided into three variables: (1) range of acute services provided (2) range of diagnostic tests provided
Clinic Size	Survey	Size is conceptualized in two ways: (1) STAFF - The number of physicians on staff; staff professionalization (e.g. highest degrees, education/training; gender and race. Number of mid-level professionals staff. (2) PATIENTS - average number of patients seen per week.
Chain/Group Size	Survey	For those that are part of chains or multi-site urgent care centers, questions addressing the (1) number of urgent care centers in the network (2) the number of physicians across the network; the number of mid-level professionals across the network (3) the number of patients seen across all sites per week.
Electronic Medical Record Use	Survey	Items taken from the National Electronic Health Record Survey on the use of electronic records, the number of years in use, meeting requirements for meaningful use.
Value-Based payment Participation	Survey	Questions addressing whether the center has been recognized as a PCMH, is in an Accountable Care Organization arrangement, or is part of Pay-for Performance arrangement. (from NEHRS 2015)
Ownership	Survey	Description of the majority ownership of the urgent care center (taken from NEHRS)
Type - Integrated	Survey	Variable indicating whether the organization is integrated into a health system.
Type – Chain	Survey	Variable indicating whether the organization is part of a chain of urgent care providers.
Individual Perceptions		
Interdependence	Survey	Select questions based on validated scales of Perceived Interdependence
Uncertainty	Survey	Select questions based on validated scales of Perceived Uncertainty
Value-Based Payments	Survey	Questions addressing perceptions about the prevalence and future growth of value-based payment in environment.
Coordination Activities (Dependent Variables – taken from UCAOA survey)		
Referral Processes	Survey	For patients without an existing primary care physician, does this UCC have a standard process to help the patient get established with an

		outside PCP? Description of process.
Referrals to Specialists or Primary Care Physicians	Survey	Variable indicating whether referrals are made and received. For referrals made, are they (1) Coordinated by center personnel w/encounter notes (2) coordinated by center personnel with no encounter notes (3) coordinated by third party personnel (4) Recommended to patients and patients make the appointment.
Information Exchange	Survey	How often is patient health information sent to sources outside of your medical organization using the following methods of data transmission: (1) Paper based method (2) efax (3) EHR (not efax) (4) Web Portal (separate from EHR). How often do you receive patient health information from sources outside your medical organization using the four methods of data transmission listed above (From NEHRS 2015)
Others (Control Variables)		
Health professional shortage	HRSA Data Warehouse	Variable indicating whether the UCC is located in a primary care health professional shortage area
Pediatric	Survey	Variable indicating whether the urgent care center only serves pediatric patients, both pediatric patients and adults, or only adults.
Age	Survey	Variable indicating the number of years the UCC has been in operation
Accreditation	Survey	Number and type of accreditations; state licensing; requirements associated with each
Practice Registration (for corporate practice of medicine)	Survey	Variable indicating whether the UCC is registered as a physician practice or diagnostic and treatment center

Many of the survey items have been taken from the 2015 National Electronic Health Records Survey (NEHRS), which has been pre-tested and administered nationally. However, I will pre-test my survey with a random sample of 10 centers to maximize reliability and validity. Once the survey items are validated, I will conduct the survey via phone or email with the owner, physician or mid-level practitioner, or manager on site at each urgent care in the census. Multi-site clinics such as those operated by chains or integrated systems will be administered through a single survey workbook to one individual respondent. However, to control for single measurement bias, the survey will also be administered to local clinic operators at a random selection of 25% of sites that are part of the multi-site group. To further address single measurement bias, I will physically separate the dependent and independent variables on the questionnaire. I will also re-administer the survey to a different respondent from a random selection of 20 clinics.

DATA ANALYSIS APPROACH

The hypotheses examine the impact of environmental, organizational, and individual factors on best practices for coordinating care with primary care providers. To test these aims, I plan to use separate linear regression models for each dependent variable using the following form:

$$g(EY) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_p X_p + \varepsilon \quad (1)$$

Where α is the intercept, β_k are regression coefficients, and g is an identity link function for linear regression model. The dependent variables (Y) will include (1) maintaining referral updated referral lists and presenting the list to urgent care users without a usual source of care, and (2) Having processes in place to share patient information post-visit with the patient's primary care provider, be it through electronic health record sharing, fax, or phone. The independent variables (X) will include the measures of the environmental, organizational, and individual determinants of coordination, as well as the control variables listed in table 7.

The indirect relationship between EMR use and each independent variable will be analyzed using the Judd and Kenney (1981) difference of coefficients approach.

$$g(EY) = \alpha + \beta_1 X_1 + \beta_2 M + \varepsilon \quad (2)$$

$$g(EY) = \alpha + \beta X + \varepsilon \quad (3)$$

This approach involves subtracting the partial regression coefficient obtained in Model 2, β_1 from the simple regression coefficient obtained from Model 3 β . The indirect effect is calculated as the difference between the two coefficients: $\beta - \beta_1$. Once each regression coefficient for the indirect effect of EMR is calculated, each will be tested for significance.

LIMITATIONS

The research faces several limitations. First, because of its cross-sectional design, this research does not allow for causal inference. Instead, the study identifies associations between environmental, organizational, and individual factors on practices. Future research using the same survey instrument may allow for longitudinal analysis.

Second, the survey only draws from the perspective from one party in the relational exchange – urgent care providers – rather than integrate the perspectives of all parties involved in the coordinating relationship. Future research may look into networks of coordination by administering surveys to a variety of providers who interact with the focal urgent care organization.

PAPER 2: COMPARING URGENT CARE TO OTHER AMBULATORY CARE THROUGH THE NEHRS (CO-AUTHORED WITH DAVE CHOKSHI AND JOE LADAPO)

The second study addresses the question: *Are urgent care centers more or less likely to make referrals and share information electronically with other providers than other ambulatory care sites (private office based practice, community health center, health maintenance organization, faculty practice plan)?* This study relies on two years (2012, 2013) of National Electronic Health Records Survey (NEHRS) data collected by the Centers for Disease Control and Prevention (CDC).

POPULATION AND SAMPLING

NEHRS is a supplement to the National Ambulatory Medical Care Survey (NAMCS), a national survey conducted each year by the CDC. The survey is administered by mail to non-federal employed office based physicians who are primarily engaged in “office-based, patient care.”⁴ (CDC 2015) NAMCS utilizes a multistage probability design the results in pooled cross-sectional data.

The NEHRS survey identifies nine settings in which physicians practice: (1) private office-based solo or group practice (2) Freestanding clinic/urgicenter (3) Community Health Center (4) Mental Health Center (5) Nonfederal government clinic (6) Family planning clinic (7) Health maintenance organization (8) Faculty practice plan or academic medical center (9) Hospital emergency department.

The analysis will be at the practice level and the population of interest is (2) Freestanding clinic/urgicenter. The comparison groups of interests are (1) private office-based solo or group practice (3) Community Health Centers (7) Health Maintenance Organization (8) academic medical centers.

Because the NEHRS is a restricted public use file I am currently in the process of requesting data from these five practice types from the CDC. Based on conversations with the CDC, freestanding clinic/urgicenters seem to represent only about 5 percent of survey respondents. Therefore, I plan to use the entire population of respondents for the study. I have yet to find out the number/proportion of respondents from the other comparison groups. Depending on the number I may base the data analysis on the entire population or sample from each category selectively by matching clinics to freestanding clinic/urgicenters based on a number of characteristics including size, zip code, and population serviced.

DATA COLLECTION

Data for this study will be combed from three sources:

- (1) NEHRS (2012, 2013)

⁴According to the CDC, NAMCS utilizes a multistage probability design that involves probability samples of primary sampling units (PSUs), physician practices within PSUs, and patient visits within practices. PSUs are geographic segments composed of counties, groups of counties, county equivalents or towns and townships within the 50 States and the District of Columbia. The second stage consists of a probability sample of practicing physicians selected from the master files maintained by the American Medical Association and the American Osteopathic Association. Within each PSU, all eligible physicians were stratified by 15 groups: general and family practice, osteopathy, internal medicine, pediatrics, general surgery, obstetrics and gynecology, orthopedic surgery, cardiovascular diseases, dermatology, urology, psychiatry, neurology, ophthalmology, otolaryngology, and a residual category of all other specialties. The sample excludes specialties of anesthesiology, pathology, and radiology, as well as contacts with patients made by telephone, made outside the physician’s office, made in hospital settings, or in institutional settings. The final stage is the selection of patient visits within the annual practices of sample physicians. This involves two steps. First, the total physician sample is divided into 52 random subsamples of approximately equal size, and each subsample is randomly assigned to 1 of the 52 weeks in the survey year. Second, a systematic random sample of visits is selected by the physician during the reporting week. The sampling rate varies for this final step from a 100 percent sample for very small practices, to a 20 percent sample for very large practices as determined in a presurvey interview.

(2) U.S. Census (2010)

(3) HRSA Health Professional Shortage Area Designation (2014).

Consistent with the conceptual framework, I expect larger clinics and those with operational EHR systems in place to be more likely to share information and make referrals than counterparts, in part due to the lower transactional cost associated with the exchanges. I also expect that clinics located in underserved areas as well as clinics that serve a higher proportion of Medicaid patients to be less resourced and less able to engage in information sharing and referral activities than counterparts. Therefore I plan to include several measures of practice size, EHR/EMR usage, and location/population served as controls in the analysis. The key concepts, variables, and data sources for the paper are described in table 7 below.

TABLE 7: PAPER 2 KEY CONCEPTS, VARIABLES, AND DATA SOURCES

Concept	Data Source	Description
Environmental Determinants		
Population Density	U.S. Census, NEHRS 2012, 2013	Population per square mile within the census tract where the urgent care center is located. Size is
Organizational Determinants		
Clinic Type	NEHRS 2012, 2013	Select from five categories: (1) freestanding clinic/urgicenter (2) private office-based solo or group practice (3) Community Health Centers (4) Health Maintenance Organization (5) academic medical centers.
Clinic Size	NEHRS 2012, 2013	Size is conceptualized in two ways: (1) STAFF - The number of physicians on staff; Number of mid-level professionals staff. (2) PATIENTS - average number of patients seen per week.
Chain/Group Size	NEHRS 2012, 2013	Variable indicating whether the office is a solo practice or part of a group practice. For those that are part of a group practice, (1) number of physicians that are part of the practice (2) number of locations associated with the practice.
Electronic Medical Record Use	NEHRS 2012, 2013	The number of years in use, meeting requirements for meaningful use, use of EMR for claim submissions, use of EMR for non-billing.
Ownership	NEHRS 2012, 2013	Description of the majority ownership of the urgent care center (Physician/physician group, insurance company, health plan or HMO, community health center, medical academic health center)
Coordination Activities		
Referral Processes	NEHRS 2012, 2013	Does this location refer any patients to providers outside office or group? Does this location see patients referred by provider outside office or

		group?
Information Exchange	NEHRS 2012, 2013	How often is patient health information sent to sources outside of your medical organization using the following methods of data transmission: (1) Paper based method (2) efax (3) EHR (not efax) (4) Web Portal (separate from EHR). How often do you receive patient health information from sources outside your medical organization using the four methods of data transmission listed above?^
Others		
Health professional shortage	HRSA Data Warehouse	Variable indicating whether the UCC is located in a primary care health professional shortage area
Medicaid Participation		

^ Health data includes lab results, imaging reports, patient problem lists, medication lists, and medication allergy lists.

DATA ANALYSIS APPROACH

I plan to perform logistic regression analyses to examine the associations between clinic type and information sharing and referral practices. I will run separate binary logistic regressions for four measures of information sharing and two measures of referral (see table 8 below for the shell table of results). Observations from the two years (2012, 2013) from NEHRS will be pooled for the analysis.

TABLE 8: TABLE SHELL FOR ANALYSIS RESULTS

	Information Sharing (Practice shares health data^ electronically with...)				Referrals (...outside providers)	
	...affiliated hospitals	...affiliated offices	...non-affiliated hospitals	...non-affiliated offices	Refers patients to...	Receives patient referrals from...
<i>Practice Type</i>						
Freestanding clinic/urgicenter						
Private office-based practice						
Community health center						
Health Maintenance Organization						
Faculty Practice Plan						
<i>Practice Size</i>						
Average number of physicians working at the location						
Average number of						

	midlevel practitioners						
	Estimated number of visits last week						
	Multi or single specialty group practice						
<i>EHR/EMR usage</i>							
	Percent using an EHR or EMR system (non-billing)						
	Average years since EHR/EMR installation						
	Percent with EHR/EMR systems meeting meaningful use criteria						
<i>Underserved Populations</i>							
	Percent in HRSA underserved areas						
	Percent in locations < 200% poverty rate						
	Average percent patients insured by Medicaid						
Sample Size (n)							
Adjusted R ²							

LIMITATIONS

Several limitations exist in this study. First, although the survey has been administered longitudinally, respondents are selected randomly each year and the data is cross-sectional. Furthermore, the sampling approach to select respondents for the NEHRS aims to be representative of all office-based ambulatory care providers and hence may not be representative of urgent care center practitioners specifically. Related to this point, the category of urgent centers is merged together with “freestanding clinics,” which may hold different meanings to respondents. Some states categorize the two as the same type of clinic. However, freestanding clinic may encompass other types of ambulatory care centers such as freestanding emergency departments.

PAPER 3: CONVENIENT AMBULATORY CARE: PROMISE, PITFALLS, AND POLICIES (CO-AUTHORED WITH DAVE CHOKSHI AND SUZANNE BRUNDAGE)

The third study addresses the question: *What does the literature say about the impact of convenient ambulatory care on cost, quality, access, patient navigation, and continuity, and what industry standards and regulations guide urgent care center and retail clinic practice?* This paper is broader in scope than in

that it also discusses retail clinics, which are also walk-in health clinics, but typically located within pharmacies or supermarkets and provide a narrower range of services than urgent care centers.

The aims of this paper were threefold: (1) to summarize the evidence around the impact of retail clinics and urgent care centers on cost, quality, access, patient navigation, and continuity of care; (2) to discuss existing standards and regulatory approaches; and (3) to lay out the key policy considerations.

A draft of this paper has been submitted to the New England Journal as a health policy report and is under review. (The report draft is available upon request)

DATA COLLECTION

Data for this paper was collected through three sources:

- (1) Literature Review
- (2) Review of legislation.
- (3) Stakeholder Interviews

LITERATURE REVIEW

A review of empirical research around urgent care centers and retail clinics was conducted in October-November 2014 as part of a United Hospital Fund (UHF) report on the growth of urgent care and retail clinics in New York. Because of the dearth of peer-reviewed articles on the topic, multiple sources including the grey literature and popular media were consulted in the search. The primary source for peer reviewed articles was PubMed, the National Institutes of Health's resource of more than 24 million medical and health care journal citations and abstracts. Because retail clinics and urgent care centers are known by various names, I used multiple search terms to identify articles related to these providers. (See Appendix A in Chang et al. 2015 for the full methodology). The review identified 12 and 25 peer reviewed empirical articles about urgent care centers and retail clinics respectively. Articles were categorized into five areas: the proliferation and scope of care, cost, quality, access, and continuity. This review was supplemented with additional articles suggested from NEJM reviewers of the first submission draft.

REVIEW OF REGULATIONS AND LEGISLATION

To understand how urgent care centers and retail clinics are currently regulated, I conducted a systematic search of retail clinic and urgent care center regulations through a variety of sources including (1) the National Conference of State Legislatures (2) direct web searches through legal-resource websites such as justia.com and law.gov; (3) email and phone interviews with industry representatives.

STAKEHOLDER INTERVIEWS

Preliminary interviews with key individuals with insights into urgent care and retail clinic practice in New York have been conducted in October – December 2014 as part of the UHF project. A total of 24 interviews were conducted with 16 individuals from the following stakeholder groups: urgent care center operators (administrators and physicians), representatives from professional associations, state and local policymakers, insurers, and health system representative). Interviews were conducted in

person or over the phone and lasted between 45-60 minutes, and followed an interview protocol that was approved by the NYU Medical School Institutional Review Board. With the exception of one interview, all interviews were recorded. The interviews covered a broad range of topics from the proliferation and performance of urgent care centers to the opportunities and risks surrounding their growth.

In order to gain a more national perspective, additional interviews were conducted with the four largest retail clinic operators (CVS, Walgreens, Target, Kroger’s), specifically around their referral and information exchange practices. Finally, interviews were conducted with the UCAOA and the Convenient Care Association to confirm information about urgent care and retail clinic legislation around the country.

DATA ANALYSIS AND PRESENTATION

The literature was summarized under five sub headings: cost, quality, access, patient navigation, and continuity of care. Information from the retail clinic interviews was used to develop a table describing the integration between retail clinics and health systems, including the number of health system partnerships and the processes used to share information and refer patients to primary care providers. Meanwhile legislative activity was summarized on a state-by-state basis with a description of the laws as they pertain to convenient ambulatory care.

TIMELINE

The following activities have already been conducted for this dissertation:

- (1) The preliminary census, resulting in 366 clinics, has been developed.
- (2) Stakeholder interviews have been conducted as part of the UHF project (interviews have been accepted under the NYU Medical School IRB)
- (3) Preliminary survey has been developed
- (4) A draft of the third paper was been submitted for review to the NEJM.

For the remaining tasks, I propose the following study timeline by month (beginning June 2015)

TABLE 9: STUDY ACTIVITIES AND TIMELINE

Study Activities	1	2	3	4	5	6	7	8	9	10	11	12
Proposal revision and defense	X											
Obtain IRB approval	X	X										
Develop phone survey, pre-test survey	X	X										
Conduct 30-minute phone surveys			X	X	X							
Draft proposal; obtain NEHRS data from RDC	X	X	X									
Analyze data and write papers 1 and 2				X	X	X	X	X				
Write Dissertation Introduction and Ending								X	X	X		
Revise Dissertation and Defend									X	X	X	X

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