The Process Of Adoption Of Disruptive Innovations In Local Health Care Agencies Delivering Primary Care

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THE PROCESS OF ADOPTION OF DISRUPTIVE INNOVATIONS IN LOCAL HEALTH CARE AGENCIES DELIVERING PRIMARY CARE

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DEDICATION

This dissertation is dedicated to all my professors in the Interdisciplinary Health Sciences Program. They are prestigious Doctors that inspired me and taught me valuable lessons found in their respective disciplines of study.

I also dedicate this dissertation to each of my family members, Silvia, Jose Luis, and Erika; they are unconditional to me. I always find in them the motivation to persevere and achieve significant goals in my life.
THE PROCESS OF ADOPTION OF DISRUPTIVE INNOVATIONS IN LOCAL HEALTH CARE AGENCIES DELIVERING PRIMARY CARE

by

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DISSERTATION

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ABSTRACT

The current state of the U.S. health care system is complex and limit access to care to many consumers, thus compromising their health outcomes. The problems of limited access and questionable quality can be addressed by focusing on enhancing the primary health care field. Improvements in both the access and performance of primary health care agencies, derive in better health outcomes and cost savings to the system in the long-term. Disruptive innovations, that make products and services simpler and more affordable, are adopted in agencies and potentially improve access and performance measures. However, the adoption of disruptive innovations in local health care agencies delivering primary care has not been explored yet. This qualitative study with a Grounded Theory design, aimed at inductively developing a process model about the adoption of disruptive innovations in local health care agencies delivering primary care. The process model was generated by interviewing 30 participants, which are the representatives of potentially disruptive health care agencies in El Paso, Texas. The semi-structured interview guide was created according to an integrated framework for the study of change and innovations in agencies. The findings of this study are of the interest of several stakeholders and have a direct application for generating efficiencies in the local health care market.
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CHAPTER 1: INTRODUCTION

The World Health Organization establishes that one of the fundamental rights of every individual is the access to quality health care (World Health Organization [WHO], 2015). To ensure that fundamental right, nations have to structure a health care system that is able to improve and protect the health of its populations to the highest possible level (Department of Health & Human Services [HHS], 2016; WHO, 2015). Nevertheless, in the U.S. health care system (also known as the system), health care disparities are observable (Centers for Disease Control and Prevention [CDC], 2013).

In the current health care system there are two relevant characteristics that limit access to care that is related to increased costs of services: 1) the providers’ power to raise prices in the market, and 2) the uncontrolled diffusion of sophisticated health technologies (Bodenheimer, 2005b; Bodenheimer, 2005c). Consequently, the U.S. health care system is the costliest worldwide, spending $9,086 on total health care per capita (Squires & Anderson, 2015). According to Cutler et al. (2010), approximately 33% of the total health care spending is inefficient because it does not positively impact the health of the population. For example, in U.S the life expectancy is 78 years, which is the lowest when compared to similar countries. Also, the U.S. has the highest percentage (68%) of elderly people with two or more chronic illnesses (Squires & Anderson, 2015). Similarly, around $750 are wasted in the system due to the following reasons: overuse, inefficient delivery models, overhead costs, and lack of health prevention measures (Institute of Medicine [IOM], 2012).
With the high health care costs, purchasers in the system including the government, employers, and patients are not able to pay insurance and/or direct costs of services (Bodenheimer, 2005a). Hence, the population bearing the highest risk of presenting unmet health needs due to inadequate healthcare access are minority groups, low-income individuals, the uninsured and underinsured, and the severely ill (Artiga, 2016; Bodenheimer, 2005a). Specifically, in 2014 there were 10.4% of uninsured individuals in the U.S. (Smith & Medalia, 2015). A total of 37% of adults in the U.S. reported confronting financial barriers to access health care services (Schoen, Osborn, Squires, & Doty, 2013).

In addition to the financial barriers, the following four non-financial aspects of the system also impact access to health care: availability or supply of health care, accessibility or location, accommodation or services’ features, and acceptability or the patients’ attitudes toward providers and vice versa (Kullgren, McLaughlin, Mitra, & Armstrong, 2012; Norris & Aiken 2006; Sanchez & Ciconelli, 2012; Wyszewianski, 2002). According to Kullgreen et al. (2012), approximately 67% of the individuals experiencing financial barriers to access health care also face non-financial barriers.

Accordingly, the system is in need of a reform to ensure a sustained and equal access health care system to preventive, diagnostic, and treatment services, that favor the wellbeing of the population (Schoen et al., 2013). There have been several strategies to reform the system including innovation in the following levels or areas: the macro-level, which includes the legal environment that regulates the health market; the meso-level, which includes the health care
agencies that deliver services; and the micro-level, which includes the behaviors of health care providers and patients.

An innovative strategy at the micro- or individual-level to reduce health care costs and improve healthcare access is a brief intervention to enhance medication adherence in patients with chronic conditions. In this type of interventions, health care providers and technicians are trained to educate patients about adherence to medications. Results of the intervention show improvements in adherence to medications for chronic illnesses, and significant reduction of health care cost per patient (i.e. reduced visits to emergency departments and inpatient services) (Pringle, Boyer, Conklin, McCullough, & Aldridge, 2014). Nevertheless, the sustainability of this type of strategies depend on changes in the system’s regulatory environment for financial support and diffusion. Also, this strategy depends on changing the agencies’ structures for the technology (e.g. the brief intervention) to fit the business model features and hence work properly. Therefore, a most robust discussion about innovations in health care is focused at the macro- and meso-levels.

An innovative macro-level strategy to reform the system is the Patient Protection and Affordable Care Act (ACA), which has sections aimed at impacting the financial aspect related to healthcare access (Cutler, 2010). The uninsured rates in the country have been lowering since the ACA was signed to law, resulting in a decline in the rate of the uninsured from 11.5% in 2014 (in the sixth month) to 9.2% in 2015, which is considered historical (Obamacare facts, 2015).
However, facilitating health care insurance not only improve access to care, but also increases the demand for services in the market. The availability of services to cope with that increased demand for health care is not being guaranteed. There is an overall low health care industry’s productivity reflected in lack of health care entrepreneurs (Cutler, 2010). Therefore, the ACA (2010) also promotes a healthy competition among providers in the market by providing information on the quality, availability, and costs of services to the public. Hence, an improvement and increase in the number of health care providers available in the market is expected (Patient Protection and Affordable Care Act [PPACA], 2010).

The ACA also encourages changing reimbursement from one that incentivizes volume to another that incentivizes quality and performance (PPACA, 2010). This potentially avoid the overuse or waste of resources in the system, which is an important contributor to the high costs of care (Bodenheimer, 2005d). Changing the reimbursement tools can also stress investing in cost-efficient technologies that center on the patients’ preferences instead of being provider-driven. In summary, these mechanisms in the ACA can impact the quality of care (agencies’ efficacy) and access to services (agencies’ efficiency) through promoting innovations in health care agencies or at the meso-level (i.e. innovative business models) (Shortell, Gillies, & Wu, 2010).

Moreover, innovating health care agencies is imperative. An important number of health care agencies are inefficient. For example, some studies indicate that such inefficiency is reflected in the deficient operating and total financial margins of health care agencies (Bazzoli, Fareed, & Waters, 2005; Duffy & Friedman, 1993; Harrison & Montalvo, 2002; Kane, Singer,
Clark, Eeckloo, & Valentine, 2012). Hence, the viability of actual hospitals is uncertain (Harrison & Montalvo, 2002).

Additionally, a focus on health care agencies delivering primary care is desirable. The development of primary care has been associated with important reductions in health care spending for people with chronic conditions. This is because primary care can promote both the efficient management of such conditions, and the adequate utilization of specialty services (Bodenheimer, 2005d). Similarly, an increased primary care availability and utilization has been related to improved health outcomes and reduced costs of care in the long term (Maeng et al., 2012). Thus, enhancing the models of primary care may be a priority solution in the system to cope with the following challenges: 1) reducing healthcare costs, 2) improving healthcare access, and 3) assuring healthcare quality.

In summary, according to the provisions in the ACA, the current status of inefficient health care agencies, and the potential positive impact of primary care on the system, innovating at the agency-level is a relevant and reasonable approach to improve access to quality care. In other words, the availability of health care agencies need to be improved through promoting the emergence of new health care delivery models. Also, the sustainability of existing health care agencies need to be enhanced through improving their performance. Innovations at the agency-level, in any industry, are critical to its growth and sustainability (Lazarus & Fell, 2011). The innovations in health care agencies can be studied through the lenses of the implementation and business sciences, which focus on explaining the process and implications of innovations’ implementation.
However, because of the few structural innovations implemented in health care agencies, the literature is lacking sufficient studies about the process of adoption of innovations at the agency-level in the health care industry (Omachonu & Einspruch, 2010; Richman, Mitchell, & Schulman, 2013). When available, the approaches for the study of innovations in agencies have lacked the predictive validity and comprehensiveness to guide organizations’ behaviors and actions to successfully adopt innovations in highly-regulated systems (Fleuren, Wiefferink, & Paulussen, 2004; Kyratsis, Ahmad, & Holmes, 2012).

1.1. Statement of the research problem

This research study explored the knowledge, perceptions, and decisions of the local leadership, represented in health care agencies delivering primary care services, about the process of innovation. This qualitative study aimed at understanding how leaders take their decisions about innovating, and their perceptions about the impact of innovating on their health care agencies and on the community they serve. This research focused only on studying health care agencies adopting disruptive innovations, because these type of innovations potentially impact the performance of agencies and access to services.

1.2. Theoretical framework

Three theories were integrated to study change or innovations in health care agencies. A table was generated to include concepts that focus on the study of change in agencies as they apply to the health care system. The three theories are the Disruptive Innovation Theory, the Institutional Theory, and the General Systems Theory. The concepts denote the elements that may be involved in the process of change in agencies. The integration was useful to generate a
non-prescriptive semi-structured guide to interview participants about the process of change within their agencies (see Appendix B).

The Disruptive Innovation Theory (DIT) provided the concepts that are specific to the study population of this research, which are disruptive health care agencies. The DIT classify innovations implemented by agencies as sustaining and disruptive innovations. Sustaining innovations stabilize the agencies infrastructure but increase the cost and complexity of existing services. Disruptive innovations initially perform poorly compared to sustaining innovations, but they offer simpler and more affordable services. The DIT describes how the adoption of disruptive innovations derives in restructuring agencies in industries (i.e. their business model), and hence, enhancing the agencies’ performance (Christensen, 2008). According to the DIT, the diffusion of disruptive agencies need an environment that also adopt and support disruptive business models (Christensen, Grossman, & Hwang, 2009). Therefore, the DIT provided a business-grounded viewpoint about the necessary conditions for adopting disruptive innovations in agencies. Some of those factors or conditions include disruptive technologies and disruptive business models.

The General Systems Theory (GST) was used to complement the business-rooted view of the Disruptive Innovation Theory. The GST focuses on considering the laws that govern agencies’ behaviors related to growth. It is useful to understand in general terms the causes and mechanisms of change in agencies. Some of the causes of change in agencies include the perceived variation of relevant conditions to which the agency is sensitive such as competition, performance, and increased agency’s capabilities (and thus, changing the agency’s expectations).
About the mechanisms of change, the GST indicates that a feedback system in the agency is responsible for translating information into orders, and for executing those orders. The GST provides additional information about the factors that may be involved in the process of change in agencies.

Furthermore, the Institutional Theory provided an extra perspective that centers on how powerful elements in the environment influence change in agencies, through legitimating standards of behaviors. Institutions or institutionalized agencies are formed when agencies adapt their structures to conform to the pressures in the environment. Hence, the agencies’ change behavior is motivated by the following legitimating mechanisms: coercive—regulations, normative—norms, and mimetic—culture. The process of change in agencies involves interpreting the legitimacy of elements in the environment. Additionally, change in the agencies (or response to pressures) varied and depend on several factors such as agencies’ size, age, sector, etc. (Scott, 2001; Zucker, 1987).

In the health care system, it can be seen that agencies are highly institutionalized. This means that their structures and behaviors are stable as they adopt one specific type of change for survival. However, according to the theory, the stability of agencies’ structures and behaviors is not desirable when other structures and behaviors are more efficient (i.e. disruptive innovations) (Zucker, 1987).

Therefore, through the integration of the three theories, the major concepts about change in agencies were selected. One of the concepts is the legitimacy in the system that would reflect a
framework with the standards for acceptable actors’ behaviors. The framework in the system would ideally result in efficient behaviors of actors. The legitimacy is provided by regulations, norms, and culture (Zucker, 1987).

For example, the regulatory environment in the system includes public and private entities at the federal, state, and local levels. Similarly, the norms in the system are in part stated by professional associations (Field, 2008). Additionally, culture in the society (i.e. changing patients’ needs), in the system, and within agencies would reflect a diverse array of beliefs and behavioral patterns (Boulding, 1953; Scott, 2001). All these elements in conjunction with the agencies’ expectations for growth would impact decisions about innovating. In other words, an imbalance in the external and internal conditions in agencies is sensed by decision-makers, who through feedback mechanisms adopt change (Boulding, 1953).

One way through which the regulatory environment in the system controls the actors’ behaviors is reimbursement. Fee-for-service is the most common reimbursement scheme, that the system uses to incentivize and hence direct the health care agencies’ innovation behaviors towards favoring the high-end point of the market (i.e. the most profitable patients). In other words, sustaining innovations are being promoted, and a providers’ focus on service volume instead of on quality is perceived. The diffusion of disruptive innovations in the U.S. health care system is expected to be cumbersome (Christensen et al., 2009).

Another concept that is believed to stimulate the adoption of disruptive innovations in health care agencies is competition. Competition has to be promoted to facilitate the emergence
of innovative business models (Coleman, Checkland, McDermott, & Harrison, 2013). For example, the ACA (2010), is promoting a competitive market in the system so that interplay among agencies is fair. However, there are still some policies that hinder the emergence of certain health care agency’s structures (Rozga, 2009).

Lastly, technology is another concept that is relevant to enable the adoption of disruptive innovations in health care agencies. Technology can improve the ways in which patients’ needs are addressed. However, to get the most of the technology, the agencies need to adopt business models that are coherent to the value proposition (i.e. patient-centered approach to health care) (Christensen et al., 2009).

1.3. Purpose of the study

The purpose of this study was to uncover the process of adoption of disruptive innovations in health care agencies delivering primary care in El Paso, Texas. Disruptive innovations potentially improve both access to services and agencies’ efficiency. However, the process and impact of adoption of disruptive innovations in local health care agencies had not yet been explored. In-depth interviews were administered to representatives of disruptive health care agencies. The results from this qualitative study will promote the dissemination of disruptive innovations through uncovering the intricacies, mechanisms, and impact of the adoption of this innovative process in local health care agencies.
1.4. Research Question

1. How does the local leadership in health care agencies describe the process of adoption of disruptive innovations?
   a. According to the leaders in local health care agencies, what is the impact of disruptive innovations on the agencies’ performance and access to services?

1.5. Significance

A literature review was conducted to understand the mechanisms implemented at the agency-level that potentially ameliorate the problem of limited access to care and agencies’ inefficiency (see Chapter 2, section 2.4).

It has been widely documented that the study of disruptive innovations is important, since these type of innovations restructure the agencies resulting in improvements related to performance and access to service (Edelstein, 2011; Hoare, 2014; Pauly, 2011; Rozga, 2009; Yellowlees et al., 2011). In spite of its benefits, the adoption of disruptive innovations in health care agencies has been slow (Phanareth, Christensen, Vingtoft, & Kayser, 2013).

According to the literature, the process of adoption of innovations in general (e.g. regardless of the industry of the agency and the type of innovation) involves the influence of factors at three levels—micro-level or the characteristics of managers, staff, and innovations; meso-level or structural elements of agencies; and macro-level or contextual factors (see Chapter 2, section 2.5.3). However, studies about the process of adoption of disruptive innovations in health care agencies are lacking. Therefore, the study of that process is warranted.
Understanding the process of innovating involves becoming familiar with barriers and facilitators of the adoption of disruptive innovations in agencies. As previously mentioned, there is no framework that comprehensively look at the complexities in the decision-making process involved in the adoption of disruptive innovations in health care (Buschow, Nolle, & Schneider, 2014). Therefore, this study aimed at proposing a framework or process model. With a process model that emerges from the perspectives and behaviors of local leaders in disruptive health care agencies, further predictions about the diffusion and implementation of disruptive innovations in the local health care market can be possible.

Particularly, innovating or changing is a constant survival strategy in agencies (Lazarus & Fell, 2011). Therefore, decisions about innovating will eventually happen in agencies. However, decisions about the type of innovations to implement in agencies (e.g. sustaining or disruptive) would depend on the availability of specific data (Porzsolt, Ghosh, & Kaplan, 2009). For example, the data have to reduce the uncertainty attached to the innovation process. Thus, by knowing the process of adoption of disruptive innovations, leaders in health care agencies can take informed and evidence-based decisions (i.e. for the efficient use of resources). Such leaders would have an implementation guide that facilitate the integration of disruptive innovations in their agencies.

Moreover, disruptive innovations can be promoted in the health care market through disseminating information on the benefits that disruptive innovations bring to agencies and patients. Accordingly, this study explored the impact of disruptive innovations.
1.6. Assumptions

Regarding the selection of participants, leaders in local health care agencies included Chief Executive Officers (C.E.O.) and other high-rank officers who answered the study’s questions during the interviews. Otherwise, they selected another agency’s representative to be interviewed. It was assumed that high rank officers in health care agencies were the “ideal” respondent given the nature and content of the research question. The research question is about the process of innovating, which is related to organizational change and business strategies that have to be managed by officers holding high level positions in organizations. Hence, either C.E.Os, presidents, directors, or selected agency’s representatives were assumed to have access to the knowledge needed to answer questions during the interview.

This study also assumed that the subjective experiences (i.e. values and behaviors) of the leaders in local health care agencies with the adoption of disruptive innovations denoted a process of social interaction in the health care market. The process of adoption of disruptive innovations in the agencies was also assumed to be affected by the context and the varied interests of the leaders in the local primary health care market. The barriers, facilitators, and the process of adoption of disruptive innovations in local health care agencies can be understood from studying the unique realities and the meaning that the local health care agencies’ leaders attach to them.

This study was interpretive in nature, hence it assumed that the qualitative and holistic exploration of the process of adoption of disruptive innovations depended on both the researcher and the participants’ interpretations of the socially constructed phenomenon under scrutiny. Such
dependency enables the creation of a process model that is grounded on the data and on the interpretation of the data.

Here, it is stated that the process of adoption of disruptive innovations in local health care agencies is complex. The complexity of the innovation process is assumed to be created by the following factors: the multiple interactions among individuals before, during and after the process, and the varied context in which the adoption of innovations occurs.

Based on the assumptions stated before this research followed a constructivist approach to grounded theory, and the study was also aligned with the objectivist approach to grounded theory. For example, the data collection and analysis process was adhered to the systematic and structured procedures of theorizing (Charmaz, 2006).

1.7. Limitations

The selection of Grounded Theory as a research design implies that data is extracted through inductive analysis, a process model from the data. This design allows to apply the emerging theory about the adoption of disruptive innovations to the specific context of primary health care agencies in El Paso, Texas. However, the main limitation of this qualitative approach is that the theory is preliminary. This means that the theory is not prescriptive to pertinent applications in the primary care field, but it is flexible. The theory ideally allows for adaptation according to the changing conditions related to the phenomenon under study. The theory is not intended to predict, but to guide individuals towards more informed decisions by providing a general picture of the process of innovating (Glaser & Strauss, 2006; Misco, 2007).
Additionally, the data analysis in Grounded Theory research may be cumbersome for non-experienced researchers. It involves the constant abstraction of meaning from large amounts of data. When researchers lack experience on Grounded Theory research, it is easy to lose focus to identify concepts that are grounded in the data (Hussein, Hirst, Salyers, & Osuji, 2014). Also, the researcher may have introduced bias to the analysis of data (Allan, 2003). However, the researcher constantly reflected on and recognized her preconceptions about the phenomenon under study. This was done to foster the accurate understanding and capturing of the socially constructed innovation process (i.e. participants’ descriptions of the phenomenon).
CHAPTER 2: LITERATURE REVIEW

2.1. Access to Health Care

Access to health care services impacts the wellbeing of individuals that are already seeking health care; also called perceived need for health care services. Individuals need access to health care services such as prevention, diagnostic, and treatment, which in turn influence quality of life and life expectancy (Norris and Aiken 2006). Barriers to access to health care is comprised of both financial and nonfinancial challenges (Sanchez and Ciconelli 2012; Norris and Aiken 2006; Wyszewianski, 2002).

Financial aspects of health care access include health care insurance (underinsured, uninsured) and health care costs (prices, spending). These financial features found in the health care system collectively determine the access domain called affordability (Wyszewianski, 2002). Nonfinancial barriers to health care access mainly relate to availability of services, but also include accommodation, accessibility, and acceptability (Wyszewianski, 2002; Sanchez and Ciconelli 2012). Not addressing such interdependent financial and non-financial barriers results in unmet health needs due to lack of timely access to preventive and treatment services, and in hospitalizations that could have been prevented (Wyszewianski, 2002; Norris and Aiken 2006; Kullgren, McLaughlin, Mitra, & Armstrong, 2012).

Affordability depends on both patients’ characteristics such as wealth, and health insurance, and on the providers’ strategies to set and control health care services prices (Wyszewianski, 2002; Sanchez and Ciconelli 2012; Norris and Aiken 2006). Affordability can
be measured as the individuals’ ability and willingness to pay for services (Wyszewianski, 2002). According to Kullgren et al. (2012) in a year, 18.5% of adults in the U.S. do not access the health care services they need due to cost. Of those experiencing affordability barriers, 66.8% also faced nonfinancial barriers (Kullgren et al., 2012).

As mentioned before, related to affordability of health care is health care coverage or insurance (Wyszewianski, 2002). According to the U.S. Census Bureau (2016) 11.5% of the population were uninsured during 2014. This percentage of uninsured represents 36 million Americans. Compared to previous data, this percentage has decreased from 14.4% in 2010 to 11.5% in 2014. The majority of the uninsured were within the age range 18 to 64 years old (16.3% of the uninsured or 31.7 million Americans). The lowest percentage of uninsured was for children under age 18, 5.5%. By gender, males were more likely to be uninsured than females in all age groups except among persons under age 18 (U.S. Census Bureau, 2016).

There is an observable difference in the absence of health insurance coverage by race/ethnicity (and after adjusting for age and gender), Hispanics were the most likely to be uninsured (23.6%) followed by blacks (11.9%), and whites (8.2%) (U.S. Census Bureau, 2016). In 2014, Texas was the state with the highest percentage of uninsured (25.7% adults and 11% children); over five million Texans lacked health care coverage (Texas Medical Association [TMA], 2016). In El Paso County, data from 2014 show that 22.8% of adults were uninsured. El Paso County is one of the Counties in Texas that exhibits a greater percentage of uninsured individuals compared to individuals in the U.S. (TMA, 2016).
Especially in the U.S., not having health insurance translates into the inability to go to see a health professional and/or receive treatment due to costs (Healthy Paso del Norte, 2015). Hence, there is a high probability that the individuals in need of care and with limited or no access to health care do not receive necessary prevention services and/or are not diagnosed, treated (Hadley, 2003). As a result, they often experience the progression of diseases, which in turn become more complex and costly to treat. Also, lack of health care insurance reduces individuals’ participation in the labor force which has an impact on their annual income (Hadley, 2003). This is also results in increased emergency department (ED) visits and hence, to health care services’ fragmentation (McCarthy et al., 2002; Schoen, Osborn, Squires, & Doty, 2013). Therefore, not having health care coverage negatively impact the physical and financial health of individuals and the performance of the health care system (Hadley, 2003; McCarthy et al., 2002).

According to Collins, Robertson, Garber, and Doty (2012), 41% of adults did not access the services that they needed due to cost and the percentage of individuals not receiving the health care they needed due to cost was 60% for uninsured adults. From a 2013 report, it was found that 37% of U.S. adults were unable to see a doctor or fill their prescriptions due to cost (Schoen et al., 2013). Similarly, from a 2015 report by the CDC (2015), 4.4% of the population failed to receive medical care due to cost. The highest percentage of people who failed to receive medical care due to cost was 6.1% for those aged 18-64. Children under age 18 had the lowest percentage of not receiving medical care due to cost (1.2%), which could be explained by the CHIPS (Children’s Health Insurance Program) legislation that covers all children in need of health insurance (CDC, 2015). By race/ethnicity, black persons were the most likely to have failed to receive medical care due to costs compared to other races; despite the fact that Hispanics have
the highest proportion of uninsured. The percentage of adults that were unable to see a doctor in 2014 was 17.6% in Texas. In El Paso County, 25% of adults were unable to see a doctor in 2014 (healthypasodelnorte.org).

Poverty level (family income) was a risk factor for not receiving medical or dental care for adults aged 18-64. According to the Medical Expenditure Panel Survey in 2013, living below 200% of the poverty level (family income) was a risk factor for adults aged 18-64. Poverty was also a risk factor for not having access to a usual family care provider. Also, individuals living in poor families were the least likely to report good ratings for the services they received and were most likely to report dissatisfaction with the health care services received (23.5%) (Medical Expenditure Panel Survey [MEPS], 2013). This data explains the interdependence between affordability and acceptability of health care services.

In summary, low income and no or inadequate health insurance are noted as barriers to health care access. The uninsured/poorly insured bear a high health care financial burden. Uninsured/poorly insured individuals present late for diagnosis and treatment, leading to increases in hospitalization and death (Hadley, 2003). Inadequate insurance can produce high out of pocket payments (cost-sharing) that occurs in 40% of the U.S. population regardless of health insurance coverage status (Schoen et al., 2013). Correspondingly, in 2014 $329.8 billion or 28% of the total health care expenditures ($3 trillion or $9,523 per capita/year) were paid out of pocket (Centers for Medicare & Medicaid Services [CMS], 2016). Bankruptcy of individuals related to health care expenses damages the financial and physical health of individuals; being uninsured is a risk factor for facing such medical bankruptcy (Seifert & Rukavina, 2006). Hence,
the uninsured exhibit poor health, which represent a problem of over $65 billion in health care costs per year (Institute of Medicine, 2004).

Improving affordability alone does not guarantee health care access, equally important determinants to health care access are the nonfinancial barriers which include availability, accessibility, accommodation, and acceptability (Wyszewianski, 2002; Sanchez and Ciconelli 2012; Norris and Aiken 2006; Kullgren et al., 2012). Altogether, the nonfinancial factors account for 21% of peoples’ inability to access health care services; they represent the most prevalent barriers for adults to access health care services (Kullgren et al., 2012). In general terms, availability refers to the supply of health services.

Accommodation is related to the health services’ features such as working hours. Accessibility denotes ease to location and transportation. Finally, acceptability involve characteristics such as the providers’ attitudes towards patients and vice versa (Wyszewianski, 2002; Kullgren et al., 2012).

Availability implies the needed equilibrium between the supply and demand components of the health care market; it represents the quantity of health care services and as such it is a tangible indicator of access to health care (Sanchez & Ciconelli 2012). Currently, the health care system is facing an increased demand for health care services. For example, the new provisions in the Affordable Care Act (ACA) (2010) will cause the inclusion of 32 million newly insured Americans, which will increase demand for health care services. However, the system will hardly be able to cope with this demand for services because there is a shortage of health care workers and an overall low yearly productivity (-0.2%) within the health care industry (Cutler 2010).
Accommodation is another factor that influences access to care. It is concerned with the patients’ perceptions of the suitability of services, addressing features related to the convenience of services that have been adapted to fit the patients’ preferences. For example, waiting times and the schedule of health care services are features of service delivery related to accommodation. In relation to primary health care, less than 50% of U.S. adults were able to see a doctor or nurse the same or next day when they needed care; 26% of adults waited six or more days to receive care (Schoen et al., 2013). Likewise, less than 40% of U.S. adults report easiness while trying to get access to health services during non-scheduled hours without incurring relying on Emergency Department (ED) services. Increased use of ED services reflects both a lack of flexible hours to get primary health care and receiving timely treatment (Schoen et al., 2013).

Accessible health care services are those that either are optimally located according to the needs of patients, or that offer prompt and accessible transportation to access health care providers (Sanchez and Ciconelli 2012; Norris and Aiken 2006; Kullgren et al., 2012). For example, the presence of safety net providers in rural and remote locations are an important incentive for vulnerable populations to access the services they require. However safety net providers are insufficient in the nation (Hoffman & Sered, 2005). Also limited transportation, such as accessible buses and convenient bus routes are additional barriers to access (Kullgren et al., 2012).

Acceptable health care services are those that are aligned to the patients’ preferences for specific health care providers’ and services’ characteristics (Wyszewianski, 2002; Sanchez and
Language, beliefs, and culture are related to acceptability of health care services (Norris and Aiken 2006). Hence, the presence of health navigators are believed to improve the patients’ attitudes towards providers since a cultural component is added to the services (Henderson & Kendall, 2011; Mumtaz et al., 2014; Hossen & Westhues, 2011).

In summary, providing health care coverage alone would not solve the problem of access (Norris and Aiken 2006). Health care agencies and insurance companies contribute to the waste of resources (e.g., overuse) which produces higher costs. These suppliers of health and health-related services often consolidate to reduce their costs and this often results in hindering competition in the market place (Bodenheimer, 2005). The result is that prices escalate with limited controls to contain costs. As discussed earlier, the health care industry also faces low productivity (Cutler, 2010). Furthermore, some health care plans present high deductibles (Schoen et al., 2013). Therefore, the availability of services and affordability cannot be guaranteed. Additionally, poor coordination of care and ineffective production processes within health care organizations can lower the quality of health care and result in poor population health outcomes (Cutler 2010). It is important to enhance acceptability of services to improve quality care. Health care features need to be adapted according to the preferences of patients in order to impact access to care (Kullgren et al., 2012). Overall patients’ perceptions on the U.S. health care system are negative and 48% think that the health system needs to change and 27% think that it needs to be completely rebuilt (Schoen et al., 2013).
This dissertation studies the possibility of such health care system reform though changes at the agency-level. The main premise of this dissertation is that improvements in access to health care can be achieved not only by changing the current health care agencies, but also by understanding the importance of supporting the inclusion of innovative health care agencies in the multifaceted health care market.

2.2. Inefficiency of health care agencies

In the face of rising cost, poor quality, and system inefficiencies, the U.S. health care system must be transformed. In order to implement innovations to restructure the system, financial incentives and subsidies are needed (Cutler 2010). Bodenheimer (2005) explains that the system’s problems related to cost and inefficiency are due to both the lack of expenditure limits and the overuse of technologies. Adler (2014) attributes the system’s inefficiency problem to an imbalance in the allocation of resources for health care and the determinants of health—environmental factors such as housing, education, food, and neighborhood safety. She mentions that adverse social conditions damage health and increase the demand and cost of healthcare. She proposes to invest in both health and social services (Adler, 2014). Moreover, Feldstein (2006) states that to structure a financially efficient system, three elements need to be balanced: improve access to care, control waste of resources, and include patient preferences in service delivery.

The health care system is experiencing a financial crisis due to low performance or low profitability that is measured as the operating and total financial margins, which determine the viability of hospitals (Bazzoli, Fareed, & Waters, 2005; Duffy & Friedman, 1993; Harrison &
Montalvo, 2002; Kane, Singer, Clark, Eeckloo, & Valentine, 2012). Operating margin is an indicator of the available revenue coming from the delivery of care; it is operating revenues minus expenses from delivering the services, divided by revenues from service delivery (Bazzoli et al., 2005). Operating margin reflects the cash flow of debt to cover current and future capital for the agency’s survival (Harrison & Montalvo, 2002). The total financial margin is the total of revenues (from all sources including donations) minus the expenses, divided by total revenues (Bazzoli et al., 2005). As a rule of thumb, good financial health for an agency in any industry has a value between 3-5% operating margins.

Hospitals’ performance is influenced by hospital and market characteristic. Bazzoli et al. (2005) found that the financial performance of 38% of U.S. hospitals was deficient before and after the recession of 2007-2009. In 2008 the total margins were almost zero for most nonprofit and safety-net hospitals that serve many Medicaid and uninsured patients. Safety-net nonprofit hospitals compared to other nonprofit and/or for-profit hospitals, had lower total financial margin performance. This is in agreement with Duffy’s study in 2003 that stated that hospitals with financial difficulties tend to be small, inefficient, owned by the government, and serve more uninsured patients. Kane, Singer, Clark, Eeckloo, and Valentine (2012) found contrasting results with regards to financial performance and hospital ownership. Public ownership and governance of safety-net hospitals was associated with higher profitability (measures from 2003 to 2007) than private ownership and other forms of safety-net hospitals governance (Kane et al., 2012). Harrison and Montalvo (2002) found variations in declines in top-performing and bottom-performing hospitals (quartiles). The bottom-performing hospitals with negative operating margins accounted for 17% of total discharges and mostly focused on inpatient acute services.
Bottom-performing hospitals showed inability to maintain credit or debt to capital (Harrison & Montalvo, 2002).

Hospital closure rates are associated with negative financial performance, but only a small percent (10%) of low-performing hospitals close after five years (Duffy & Friedman, 1993). According to Bazzoli et al. (2005), only 5% of total agencies change their operations, ownership status, or service line to neutralize the negative financial impact of the recession. The ability of weak and safety-net agencies to stay in the market after the recession may be due to the incentives they received from the American Recovery and Investment Act of 2009. Interviews conducted by Kane et al. (2012) revealed that about 35% of public hospitals total revenues are received through local government support. However, poor political leadership is usually encountered in publicly governed hospitals that reflect the lack of financial control, competitive strategies, productivity of physicians, and performance measures for cost and utilization (Kane et al., 2012).

In summary, the hospitals’ performance may vary according to multiple factors. For example, financial inefficiencies are especially found in hospitals targeting uninsured, underserved, and marginalized populations. The hospital’s ownership, governance, and leadership also appear to be important determinants of hospital performance. The hospital leadership is crucial for establishing efficient financial and other business tactics, including enhanced providers’ productivity and performance monitoring. Moreover, one study (Harrison & Montalvo, 2002) reported health focus as one characteristic of low performance in hospitals. However, the majority of underperforming hospitals do not have to close or change their
characteristics to address their low performance; they are able to stay in the market because of the incentives they obtain from the government.

Hospitals are in need of organizational redesign to increase their financial efficiency and to generate new value propositions that are accessible, attract external funding and recruit clients in the competitive health care market (Bazzoli et al., 2005; Harrison & Montalvo, 2002; Kane et al., 2012). Recent reductions in government financing to hospitals—caused by the economic downturn—calls for the need for hospitals to restructure their business strategies (Kane et al., 2012). For instance, California is one of the states dealing with budget reductions in Medicare payments. However, other than deficit reduction policies, the following factors also threaten the viability of underperforming hospitals: market competition, state requirements for higher health care professionals and information and communication technology (ICT) implementation, and increased demands for health care (Harrison & Montalvo, 2002).

2.3. Theoretical framework

2.3.1. THE DISRUPTIVE INNOVATION THEORY

The constructs of the disruptive innovation theory (DIT) include two types of innovations: sustaining and disruptive. Sustaining innovations are the most common in any market. They are technological implementations that make existing products and services (P&S) a lot better. Sustaining innovations can be incremental or mere breakthroughs that allow agencies to keep progressing along the trajectory of performance improvement of products and services in the market (see Figure 1). Customers in the market where sustaining innovations are adopted can
utilize different levels of P&S performance improvement. In other words, some customers prefer
or have access to the basics of the company’s offer—low-end—, and those at the top—high-
end—are the most demanding customers (see Figure 1). These customers’ needs remain stable
over time and it is common that a company offers P&S with functions and features more
complicated and expensive than those that most customers can utilize and afford (Christensen,
2009).

Conversely, disruptive innovations are adopted most of the time by new companies. They
introduce to the market less sophisticated P&S than those offered by leading companies in the
mainstream market. These P&S are usually simpler and more affordable. Disruptors or
companies that implement disruptive innovations focus on non-consumers (previously non-
existing market) or on those customers in the low-end market that are unable to pay or lack the
skills to use the products and services of the mainstream market (leading companies) (see Figure
1). Therefore, disruptive innovations compete on a different market; they usually compete on the
basis of simplicity, affordability and accessibility. Disruptive innovations also tend to improve
over time. Disruptors keep improving their P&S to a point in which customers in the mainstream
market can be served by the disruptors’ P&S and are drawn into the new market (Christensen,
2009). This is known as market disruption.

Disruptive innovations can be classified as follows: 1) low-end—focuses on serving the
least profitable, over-served customers of the original/mainstream market, and 2) new-market—
which serves the non-consumers and the challenge is overcoming non-consumption. The new-
market disruptive innovations are also classified into two types: 1) fringe-market low-end
encroachment denotes when a new P&S opens up a fringe market where customers’ needs are incrementally different from those of the low-end mainstream market customers, and 2) detached-market low-end encroachment is when a new product or service opens up a detached market where customers’ needs are dramatically different from those in the mainstream market (Schmidt & Druehl, 2008).

![Figure 1. Model of disruptive innovation (Christensen, 2009)](image)

The history describes how big and leading companies have been disrupted and fail in the presence of new or existing companies implementing disruptive innovations. According to the disruptive innovation theory (DIT) big companies were not interested in disrupting the market. It did not make business sense to prioritize low-end markets that would lead to very low or no
profit margins. In other words, their business models were focused on a different value proposition and on other type of clients who were the most demanding/profitable customers. The disruptor keeps improving its products and services and eventually it can outperform the incumbent (leading company) which explains why customers are drawn from the mainstream market to the new market (Christensen, 2009).

The disruptive innovation theory (DIT) can be utilized to evaluate the growth trends of an industry and predict the success or failure of companies when new waves of disruptive innovations are emerging. Also, the theory of disruptive innovation in general, and the concept of disruptive innovation in specific, provides a guide to assess the opportunities that a market has for disruption. For instance, incumbents’ products and services (P&S) that reached their leverage, performance improvement, and diffusion limits, can be potentially disrupted (Yu & Hang, 2009).

The health care system is considered a market that has not embraced disrupted innovations. It offers complicated and expensive products and services for only those clients with sufficient money and skills to access them. Innovating the health care system has become imperative. With a complete understanding of the theory, the likelihood of developing disruptive innovations by type of firm, including health care, can be estimated (Yu & Hang, 2009).

Disruptive innovations in health care are embedded into cost-efficient business models and exist in a context where multiple actors are coordinated. Such context is called “value network” and includes the interactions among disruptors, suppliers, and distributors. The
business models of the actors in a given value network match and are interdependent. The existing value network in health care either rejects or diminishes the potential for change of disruptive innovations; it forces the adaptation of disruptive business models to fit those of the actors in the system. Therefore, in order to survive and be supported many disruptive innovations adapt to the needs and expectations of powerful stakeholders in the system (Christensen, 2009).

The health care value network is composed of the following actors: independent physician practices, multihospital organizations that contract with physicians, nurses and other health care providers, and insurance companies. Reimbursement is the tool that dictates and regulates the interactions among these actors in the health care system. Disruptive innovations in the health care system require a new value network.

According to Christensen (2009), integrated providers can promote the generation of new value networks: they have their own insurance and payment systems, health providers are employees, there are focused and general health care agencies coordinated by information and communication technologies (ICT) applications. The integrated providers select disruptive business models because they are more affordable and efficient venues of health care. The profitability of agencies within integrated models is measured in patient satisfaction levels. In other words, integrated models of care have the goal of profit from wellness and therefore, adjust the reimbursement of providers according to their business model type.

Also, employers can promote the generation of a value network for disruptive innovations. The employers’ main interest is to keep their employees healthy. Employers have a long-term vision to spend on people’s health today, they make money by keeping people healthy, they know and care about their clients, and are capable of implementing the needed changes. The
employer can manage an integrated health care system if it has the following: it has its own health insurance; the health providers receive a salary based on performance; it contracts with hospitals, disruptive clinics and chronic disease management networks; provide access to interoperable electronic health records (EHRs); and rewards employees’ healthy behaviors. Examples of truly integrated employer-managed health care systems include: Toyota, Sprint, and General Mills, among others (Christensen, 2009).

Disruptive innovations can be disseminated in market environments that integrate efficient reimbursement systems and information and communication technologies (ICT) applications that connect health care agencies and other stakeholders in the industry (Christensen, 2009). Disruptive innovations have been implemented in a variety of programs within the health care industry, such as specialty heart, chronic care, orthopedics, and dental care. However, the implementation or support of disruptive innovations faces opposition. Barriers to the implementation of disruptive innovations include: supply-driven market strategies, insurers that only reimburse traditional (versus innovative) health interventions, and regulations that perpetuate the status quo. If disruptive innovations are not supported, only sustaining innovations will be disseminated. Sustaining innovations are costly and do not promote access to care for low-income and disadvantaged populations in the U.S. health care system (Hansen & Bozic, 2009).

According to Christensen (2008), in order to promote the emergence and applicability of disruptive innovations: 1) providers’ skills need to be matched with the health problem, 2) stakeholders need to support technologies that simplify health care, 3) organizations need to
adopt disruptive innovations, and 4) legislative changes that facilitate the emergence of disruptive technologies need to be created.

2.3.2. THE GENERAL SYSTEMS THEORY

The major concepts related to organizations that are discussed in the General Systems Theory (GST) are the following: system, isomorphism, equifinality, negative entropy, and homeostasis. As its name indicates, the GST is a general and empirical/mathematical approach to solve the problems of “organized complexity” in different entities. The GST defends the notion of not only studying the phenomenon’s fundamental elements and processes in isolation, but also to understand the interactions among those fundamental elements within an “organismic conception” or the order that unifies the parts. GST states that there are universal principles that apply to every system in any discipline (Bertalanffy, 1968).

The first concept in GST is the system, which is defined as a complex of parts that interact (i.e. “reciprocal relations” or parts that are related through several feedback processes). The second concept is isomorphism, which is the fact that there are structural similarities among systems in different fields of study. For example, some principles have been applied across systems because the required theory/model to solve a problem in one field has already been used in another field. The GST also defines equifinality, which is a final state in closed-systems that is unequivocally determined by the initial conditions. It suggests that there are multiple approaches (i.e. initial conditions and pathways) to achieve the same outcome. The concept of equifinality also applies to open-systems when they achieve a steady state and develop towards more organized states (Bertalanffy, 1968).
Living entities develop from disorder and chaos to decreased states of entropy or ordered and organized states. This is called “negative entropy,” which is a characteristic of open/dynamic systems that maintain/stabilize themselves by processes (i.e. dynamic interaction and feedback) that avoid entropy. These processes ensure the steady flow of essential resources to keep the system operating. Finally, homeostasis is a concept that refers to self-regulating or feedback systems to maintain the achievement of certain system’s goals and stability (Bertalanffy, 1968).

The General Systems Theory is relevant to the understanding of disruptive innovations because it focuses on knowing why and how health care organizations’ change by adopting innovations. The GST provides an important framework to find the common laws that hold true for organizations as open-systems. The selection of variables that may impact the growth and survival of health care organizations (and hence, the adoption of innovations) is facilitated by the use of the GST.

According to Boulding (1953), the forces that pressure organizations to change come from the demand and supply side of the market. From the demand side, Boulding (1953) explain that the changing needs of populations, exhibited as an increase in their self-awareness, drive them to increase their status and pressure organizational change. However, the most influential forces of change are found in the supply side or the organization itself. Organizations increase their skills and technological capacity and hence change, create, and transmit new needs to societies (Boulding, 1953).
Therefore, organizations change when developments in communication technology foster their geographical expansion. Also, new organizational structures (complex) emerge and survive because specialized workers such as managers execute efficient systems of information and control. Additionally, organizations diversify by developing products for a non-saturated market; however these organizations face the dilemma of growing at the expense of structural homogeneity. According to Boulding (1953), the process of change in organizations follow these general steps: 1) a dynamic period of rapid growth followed by 2) a relatively static condition of adaptation of new structures to the nature of the organization.

To better understand organizational behavior, Boulding (1953) proposes a general model of organizations and a series of laws that can direct organizational growth and survival. In general, organizational behavior reflects the constant organizational responses to external and internal asymmetries. Also, the organizational behavior is determined by expectations and planning, which result from learning processes. Organizations have several interactive components such as authority and communication systems, and present a life-cycle.

Asymmetries experienced by organizations are addressed by control mechanisms or feedback that regulate the quality of certain factors to which the organization is sensitive—profitability, market share, and reputation—. The organization has to be capable of understanding what impacts the quality of such important factors. The feedback process occurs as follows: 1) a receptor captures divergence in the qualities of factors (actual versus ideal values) and sends the information to an interpreter through a transmitter, 2) the interpreter
generate orders and send them to an effector, which in turn 3) execute the orders through transmitters of effect that impact the initial factor (Boulding, 1953).

As a consequence, the environment of organizations is in constant change and readjustment to achieve periods of equilibrium. The entrance of new organizations or the restructuring/change of existing ones can succeed or fail in the market. When organizational change is successful and new organizations accumulate, it causes adjustments and further improvement in the environment and also the decay of previous forms of organizations. The following are the iron laws which hold true for organizations facing transformation (Boulding, 1953).

The Malthus law states that if the only checks on the population growth are poverty measures, the population will grow until the population experience poverty; there is no escape from the conclusion of the initial premise. Hence, conscious checks on the growth of organizations have to be established. Ideally, entities should grow to a point in which such growth does not impede the progress of their environment or ecosystem (Boulding, 1953).

The law of culture states that the family transmits social culture patterns. The character and life of families need to be changed for a social change to be permanent. One relevant culture factor is the status of women in society, they enhance political democracy and innovativeness (Boulding, 1953).

The law of optimum size indicates that every organization has an optimum size. The size of the organization determines its nature. For example, interaction in small organizations tend to
be personal, while large organizations exhibit basic levels of interaction among members. If an organization grows beyond its limits, problems in the communication and executive systems arise. The challenge of large organizations is to establish a satisfactory minimal interaction among members (Boulding, 1953).

The law of optimum size is linked to the law of hierarchy, which states that the larger the organization the more complex the will be its hierarchical structure (and hence the communication among members). Hierarchy is a system that simplifies communication within the organization by transforming information into orders and transmitting it at specific levels (up and down) (Boulding, 1953).

The law of oligopoly is about the healthy competition needed in every market which can be achieved by the presence of many independent organizations. When there are few organizations, conflict emerge because some powerful organizations can limit the progress of other organizations (Boulding, 1953).

The law of instability states that the expectations of organizations guide their behaviors, which cause the expected consequences. Also, there are occasions where organizational actions generate unexpected results. For example, the elimination of bad organizations can cause the emergence of worse organizations, because the bad organization’s actions were keeping the worst organizations from emerging (Boulding, 1953).

Lastly, the law of the persistence of the role indicates that the organization is composed of roles that are held together by a communication system. The roles in the organization shape
the character of individuals filling them, individuals change the role only slightly (Boulding, 1953).

In summary, organizations can succeed in their change efforts if they clearly understand the causes of their problems and the laws governing change. In general there are external and internal factors that limit the growth of organizations. For example, the law of optimum size points to the fact that as organizations grow, they generate increasingly unfavorable internal and external environments. The external environment or the market may become saturated, which hinders the ability of organizations to increase their revenue from selling. Also, the internal structure may generate inefficiencies in the information and control systems; such inefficiencies negatively affect the organizational survival.

2.3.3. THE INSTITUTIONAL THEORY

Scott (2001) define institutions as the most relevant construct in institutional theory. Institutions are composed of the following three institutional elements: 1) regulative, 2) normative, and 3) cultural-cognitive. The three institutional elements work in combination, but function according to different mechanisms and processes. Institutions are social and resilient structures that provide meaning and guide behaviors in social life. Institutions (or institutionalized organizations) exhibit a relatively stable behavior and structure that conform to the systematically controlled order imposed by the state or any other institutional element in the field. Despite the relative stability of institutions, they are subject to incremental or disruptive change.
The institutional theory also defines one relevant level of analysis as the institutional environment or organizational field. The organizational field is as a recognized area composed of the flow of information and interaction among members such as service providers, suppliers, consumers, competitors, funders, and regulators, and aspects of power and hierarchy (i.e. state influence). The members of the field share regulatory, normative, and cultural-cognitive frameworks (Davis & Marquis, 2005; Zucker, 1987).

The legitimized pressures from the institutional environment or organizational field impact the behaviors of organizations. Such external and/or internal pressures become legitimated (i.e. acceptable, valid, and credible) in the environment through the following mechanisms: 1) coercive, 2) normative and 3) mimetic. Hence, the presence of regulations (coercive), norms (normative), and isomorphic (mimetic) organizational structures and actions are indicative of a highly institutionalized environment. At times, legitimacy is mostly defined by the values of those who have the greatest social power. The sources that pressure organizations to change and become institutionalized can include the institutional environment, the organization itself, and other organizations (Zucker, 1987).

When the institutional environment is the source of powerful pressures the following occurs: decision-making become centralized, the type of organizational change is limited, and the system tends to homogenization. The laws and rules in the institutional environment are formed in the state or other system hierarchically superior to the organization. Such rules, and the procedures and structure of actual organizations represent highly rationalized routines that do not mirror organizational contingencies (Scott, 2001; Zucker, 1987).
Organizations that reproduce the rationalized order of the institutional environment become institutionalized. They do so by protecting their core activities and separating structural elements from other activities, which reduce their performance. However, when the fit between organizations and the institutional environment is optimal, organizations increase positive evaluation, support, and survival. Institutionalized organizations have important legitimating functions (Scott, 2001; Zucker, 1987).

Some regulations in the institutional environment are not coercive but ambiguous, which make laws subject to collective interpretation. Hence, the regulatory element of institutions (and the institutional environment) can rely more on normative and cultural-cognitive mechanisms and processes for its effects (Scott, 2001).

Other organizations in the field can also be sources of external pressures to organizational change. For example, organizations not linked to the state (i.e. professional associations) can adopt innovations, which by its linkage to the organizations’ reputation become legitimated institutional elements. Other organizations are also the source of institutionalization through prescribing rules or standards of behavior and structures (i.e. routines, strategies, etc.) (Zucker, 1987).

Institutionalization can also arise from the organization. Trusted organizations are a source of new institutional elements, which are transferred to others and legitimated overtime. Institutionalized organizations have stable structures and behaviors. Such stability in alignment
with organizational objectives, increases performance. However, stability is not desirable in the presence of more efficient organizational structures and practices (Zucker, 1987).

Also important is to note the salience of the cultural-cognitive institutionalizing element. The individuals’ and organizations’ internalized meaning of the environment is shaped by the external cultural/beliefs frameworks and interactions (Scott, 2001).

Depending on which institutionalized element is privileged in an organization, the organization will show specific basis of compliance, diffusion, and evidence for its legitimacy (Scott, 2001).

As mentioned before, organizations react to the available information on the demands from the institutional environment. When enough attention is given to the information presented to them, a sense-making/interpretation process begins in the organization. For example, organizations pay attention to the legitimacy and applicability of the demands, and to whether and how similar organizations have responded to them. However, the adoption of changes is not the only response of organizations to their institutional environments (Scott, 2001).

According to the institutional theory, the variability in the response of organizations to the institutional environment demands for change would depend on the following factors: difference in institutional environment demands determined by the size of the agency, the sector—public, private—, time—early, late adopters—, patients—diversity, density—, local support, age, and the presence of other organizations adopting changes. Change appears to be the result of cost-efficient (at the beginning) and mimetic (latter due to normative, cognitive-cultural pressures) strategies in an uncertain or demanding institutional environment. Both type of
adopters improve their legitimacy in the institutional environment when there is a regulation instituting the change (Scott, 2001).

In general, there are five strategic responses of organizations to institutional pressures: conformity, compromise, avoidance, defiance, and manipulation. Conformity can be motivated by fear of sanction or the desire to enhance the flow of resources from the institutional environment; organizations adopt structures and practices according to the demands in the institutional environment. Compromise or negotiation and varied interpretation of demands occur in environments with conflicting or inconsistent institutional frameworks/authorities. Avoidance or decoupling organizational structure from technical activities is exhibited by the specialized units that conform to regulatory demands; it is a common implemented strategy when cost-benefit measures do not favor the organization. Defiance is when organizations publicly resist to follow institutional frameworks when their interests and those of institutions are divergent. Lastly, manipulation occurs when organizations gain the support of sources of power (i.e. the media) to improve their legitimacy and influence the institutional environment (Scott, 2001).

Additionally, the following factors are common determinants for the adoption of innovations in organizations according to the institutional theory. Size—organizations that are large, have more access to resources and are more affected by the institutional environment due to both their level of differentiation and public visibility. Also, organizations in the public sector are more likely to change to agree with the institutional environment demands. In private organizations, the CEO background and power are determinant in adoption behaviors. Finally the performance of the organization influence the adoption outcome. Organizations’ ties to other
organizations are also influential in the adoption of innovations. Particularly, the linkage among organizations with “structural equivalence,” geographical proximity, those referred as successful, and those with whom they share resources and information (Scott, 2001).

The institutional theory explains the causes of the generation and discontinuation of the institutional elements that guide organizational behavior (Scott, 2001). The influence of the changing institutional environment in health care agencies can be known, and hence, the theory is also useful to elucidate the agencies’ response to such influence. This dissertation focuses on studying the adoption of innovations by health care agencies. This theory can help describe the strategies or mechanisms used by health care agencies to respond to demands for change from the institutional environment. The theory may be instrumental in defining the actors and interactions that produce the general outcome of adoption of innovations by health care agencies.

2.3.4. INTEGRATED FRAMEWORK TO STUDY INNOVATIONS IN HEALTH CARE AGENCIES

A list of concepts to study disruptive innovations in health care agencies was presented in Table 1. The list includes premises from three theories focused on understanding change in organizations: The Disruptive Innovation Theory (DIT), The Institutional Theory (IT), and The General Systems Theory (GST). The list consists of elements believed to pressure change in health care agencies, and elements involved in the change process within such agencies.
Table 1. Integration of three theories of organizational change

<table>
<thead>
<tr>
<th>Theory/level</th>
<th>Macro-level</th>
<th>Meso-level</th>
<th>Micro-level</th>
</tr>
</thead>
<tbody>
<tr>
<td>GST</td>
<td>Asymmetries caused by patient and providers’ changing needs</td>
<td>Communication and control systems</td>
<td>Feedback mechanism</td>
</tr>
<tr>
<td>DIT</td>
<td>Value-based reimbursement systems</td>
<td>Integrative delivery models</td>
<td>EHR, other technologies</td>
</tr>
<tr>
<td>IT</td>
<td>Legitimacy, competition</td>
<td>Culture</td>
<td>Information</td>
</tr>
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The health care system and the challenges to improve health care access

In general terms, health care participants include doctors’ offices, multi-hospital organizations, health care providers, suppliers, and distributors. Of the total health care facilities in the nation, 80% are owned by the private sector and 20% are owned by the government. Many of the public health care agencies are experiencing financial difficulties related to internal organizational inefficiencies (Bazzoli et al., 2005; Duffy & Friedman; Kane et al., 2012; Harrison & Montalvo, 2002). Public and private insurance companies are the intermediaries that link health care agencies with health care providers. Sixty percent of the total financing comes from private insurers, and 40% comprises the government coverage including federal, state and local-level providers (i.e. Medicaid, Medicare, Children’s Health Insurance Program [CHIP], Veterans Tricare, etc.). Of the total system’s expenditures, 65% come from government programs (Snowdon & Cohen, 2011).

Contracting within the system generates interdependence among actors. Insurance companies direct the demand for health care to big and costly hospitals (Christensen, 2009). The prices and costs for health care services are high and rising (Bodenheimer, 2005). In part, such prices are maintained high to promote the buying of health care insurance. Also, the high prices
help in maintaining the profitability of hospitals which have consolidated and have market power. Hence, competition is reduced in the market. High and rising health care costs limit the affordability and hence the access to health care services.

Also, providers’ behaviors are not optimal, they contribute to the overuse of health care services guided by current reimbursement schemes. Additionally, health care agencies operate inefficient delivery models. Such health care agencies are poorly coordinated, which disrupts the continuity of care and generates waste of resources though overlapping care and negligence costs (Snowdon & Cohen, 2011). Also patients overuse the health care system when insured individuals get access to services that they do not need. Hence, the costs of care keep rising without commensurate improvement in health outcomes or customer satisfaction.

The health care system’s challenges to provide access to quality and efficient care have escalated due to the effects of the following: the regulations proposed in the Affordable Care Act of 2010 that increases demand for health care services by providing health care coverage to uninsured individuals; the difficult economic times in the nation that produces unequal distribution of wealth and health disparities; the demographic and epidemiological transitions characterized by an aging and diverse society mainly suffering from chronic conditions related to sedentary lifestyles; low industry productivity coupled with growing shortages in the health workforce (Michigan Center for Health Professions, 2010); and a paradigm of one cause-one disease that guide providers’ behaviors and causes a lack of integration and coordination of health care services (Snowdon & Cohen, 2011).
Such extraordinary health care costs need to be contained in the health care system to improve the system’s sustainability and to ensure the population’s access to health care. However, approaches related to containing costs, while at the same time maintaining access to quality health care services have been unsuccessful.

One market strategy to contain raising health care costs included the restriction in the availability of services. For example, global budgets in public health care services and reduced system capacity have limited the availability of services and reduced costs to the system. This strategy has resulted in reduced access to services (Snowdon & Cohen, 2011).

A strategy to reduce health care costs at the agency-level is changing providers’ behaviors. For example, some health care providers control the hospital length of stay and the access to technological advancements and specialists. They also incentivize quality and benchmarks achievement (Snowdon & Cohen, 2011). This strategy may generate some cost savings, enhance patients’ safety, and improve the quality of services. Nonetheless, this strategy does not directly addresses the problem of limited access to such services.

The ultimate goal of this research is to contribute to reducing the problem of limited health care access. As mentioned before, the health care system is experiencing multiple challenges related to controlling costs and increasing services availability, which are directly related to health care access. As described in this section, such challenges are not being optimally addressed. For example, the efforts to contain costs through global budgets and limiting services availability are negatively impacting health care access. Additionally,
competition among health providers is being promoted by federal regulations, which has the effect of generating cost-efficiencies. However, such policies promote competition among intrinsically inefficient health care agencies and in an environment that does not enhance service integration. Also, with the existing shortage of health care workers and the pervasive fragmentation and misdistribution of health care agencies, the goal of improving access to health care and thus protecting the health of the population is jeopardized.

Hence, with an approach to study changes in health care agencies, this research endeavor has the purpose of uncovering the system’s opportunity to improve health care access. Through better understanding innovative delivery models that are cost-efficient, the system can grow, improve health care access and ensure its sustainability in the long-term.

Agencies in general, exist within a constantly changing environment that includes the social, political, and economic forces that impact the organizations’ composition. In order to survive, agencies need to adapt in order to cope with the changing exigencies related to serving customers, competing in the market, and complying with government regulations. Agencies adapt by changing their production processes, management and growth strategies, and relationships with external actors (i.e. other agencies).

Agencies change or innovate when they deliberately incorporate new ideas, processes, and/or products and services (West, 1990). The adoption of innovations in agencies can result in obtaining benefits including: efficiency in service delivery, cost advantages, increased likelihood
of organizational survival, and improved value for customers. Innovations in health care agencies have the potential to address the challenges that the U.S. health care system is facing.

Therefore, of importance is to highlight the factors in the health care system that can impact the health care agencies’ efforts to change and address the system’s challenges of providing efficient and accessible health care. Specifically, the following paragraphs describe such factors.

Regulations and rules

The environment of health care agencies is complex. The complexity of the system is in part due to its regulatory scheme, which includes the representation of various stakeholders’ interests (i.e. government, public-private partnerships). For example, regulations at all levels exist—federal, state, local. Public and private agencies enforce such regulation (Field, 2008). Also, the legal environment of health care agencies is inconsistent and fragmented. Federal, state and local collaboration often occurs to regulate/control the health system (Field, 2008). For example, the oversight of health care agencies is in charge of state agencies that collaborate with the federal power.

There are rules and norms that also guide health care agencies’ behaviors. Private organizations such as the Joint Commission on Accreditation of Health care Organizations (JCAHO) accredit health care agencies according to the current standards of care and is supplemental to government regulations (Field, 2008). This accreditation process may or may
not be coercive depending on the state, but it is a publicly recognized characteristic of quality care by payers (www.jointcommission.org).

It is not surprising to find private normative bodies (i.e. professional organizations) biased by a remarked financial interest that does not center on protecting the public’s right for health care. Also, the government may be inefficient and exercise excessive power over organizations. Positive and negative aspects of the health care system’s regulatory scheme promote and constrain certain behaviors, and can also cause confusing decisions in health care agencies (Field, 2008).

In spite of the negative aspects of the complex regulatory scheme, all regulations and organizations that oversight the health care system have served to establish legitimacy in the system (i.e. obligatory, exemplary/acceptable, and scientific/technical frameworks). Competent health care professionals and effective health care agencies are the result of such highly regulated system (Field, 2008).

The central question in this research is related to the adoption of disruptive innovations by local health care agencies delivering primary care. Hence, even though the whole health care system is highly regulated in general (i.e. laws and policies at various levels, professional associations, accreditation agencies, etc.), there are particularities associated with the environment of such primary health care field.
For example, the adoption of disruptive innovations can involve both the opening of a health care facility and the hiring of low-cost health paraprofessionals, technicians and professionals. In this case, there are specific restrictive state regulations that are relevant to the success or failure of the adoption of such disruptive innovations—state certificate of need law (CON) (hinders competition by restricting the emergence of health care providers), and corporate practice of medicine law (CPOM) (Rozga, 2009; Zeta, 2008).

Price and reimbursement systems

The prices that insurers and patients pay do not reflect market principles such as fair competition, and supply and demand forces. Prices are more often controlled by physicians and hospitals, economists, and actuaries. These groups have coalesced to create market power, giving them the capacity to raise the prices. In other words, powerful providers of health care services have established prices based on formulas that include physician work, indirect expenses, equipment, location, and other costs in reimbursement calculations. These formulas have been used since the 1980s, and although the prices are regularly updated, such price determinations are not linked with the value of services delivered. Hence, prices for health care services present variations, the highest prices being a sign of providers’ consolidation. Additionally, current reimbursement formulas do not adjust for efficiencies generated by agencies adopting new delivery models. Health care agencies that generate cost-savings through innovative business models are not being incentivized in the current system’s context (Christensen, 2009).

Reimbursement is then a remarkable tool in the environment of health care agencies that dictates the behavior of health care providers. Historically, a fee-for-service reimbursement formula has been the most common in the system, therefore providers have been incentivized to
focus on volume of services to obtain the highest revenue possible (i.e. the more services they deliver, the more they get paid). Consequently, the health care system is mostly working within a provider-centered paradigm that profits from disease. It is estimated that 50% of health care services are performed unnecessarily due to the FFS payment scheme (Christensen et al., 2009).

The actual FFS reimbursement system of general hospitals maintains intermingled business models by cross-subsidization. General hospitals’ delivery model is inefficient because it reduces quality of services and increases overhead costs (costs not directly spent on service delivery), and therefore overall health spending. Consequently, many public hospitals would not be economically viable if subsidies, prices, and regulations that constrain competition were not promoted (Christensen et al., 2009).

The FFS reimbursement system also excludes innovative alternatives to care. For example, in the 1970s the federal program End-Stage Renal Disease (ESRD) approved full reimbursement for dialysis to patients. Specialists had the opportunity to promote the use of an innovative procedure that facilitated access to dialysis at home (disruptive innovation). However, the federal incentives caused nephrologists to direct patients to dialysis services provided in clinics. Agency-based dialysis centers are more costly compared to the disruptive dialysis procedures available at home (Christensen et al., 2009).

Other reimbursement systems such as global payments—global budgets determined for integrative delivery models who serve specific populations—, bundled payments—episode-based payments based on expected costs for episodes of care—, fee-for-value—are awarded to health providers that make efficient use of resources (incentivize management and coordination of health care)—, and fee-for-performance—supports providers that seek to deliver efficient and
quality care—have the purpose is to adjust incentives to support better health outcomes and accountability measures (cost and quality indicators) (Conrad, Grembowski, Hernandez, Lau, & Marcus-Smith, 2014). The Affordable Care Act (2010) includes provisions to foster the implementation of such alternative reimbursement systems that adjust FFS payments to reflect quality. Hence, new approaches to health care and delivery models (including disruptive) are being promoted under the ACA (2010) (Conrad et al., 2014).

The following factors are determinant to adopt alternative payment systems that incentivize the creation of innovative health care agencies (delivery models): the culture in the context/market and legislations. A coalition is the governing mechanism that leads multi-agency collaboration for the implementation of such payment changes. The coalition is also instrumental for securing external investment and resources. However, the payment changes face obstacles such as difficulties in engaging stakeholders (competing interests), incompatible electronic health records (EHRs), and providers’ lack of knowledge and skills about integrative and innovative models of care (Conrad et al., 2014).

Competition

Change in health care agencies can be promoted by competition in a free market. Free market meaning that the relevant information on health services, their prices and adequacy is available to patients, and hence patients can take rational decisions about their health. The system does not operate according to the tenets of a free market because of the following reasons: 1) health care providers had consolidated and set high prices for the services they deliver; they have market power and can control the market’s behaviors; 2) patients are not
properly informed on the options they have in the market to take educated decisions about their
health; and 3) the emergence of innovative and efficient agency structures are not being
promoted by the current fee-for-service reimbursement system that incentivizes volume over
quality and performance (i.e. cost-efficient models) (Bodenheimer, 2005). Strategies to enforce
antitrust laws can be beneficial to ensure a fair competition in the health care market (Jost, 2010).
Also, professional associations and regulations at all levels limit the availability and practice of
health providers, hence hampering competition because innovative and efficient delivery models
(with alternative health providers) are not promoted.

For example, the MinuteClinic is an innovative retail health clinic (RHC) located in store,
CVS pharmacies in the U.S. These clinics provide basic or episodic health care services on a
walk-in basis, which are delivered by registered nurses (RNs) and/or physician assistants (PAs).
The clinic opens late and on weekends, does not require appointments, and patients can easily
pick up over-the-counter and prescription medicines in the same store (Minute clinic, 2013).

From the point of view of the American Academy of Family Physicians (AAFP) and the
American medical Association (AMA), retail health clinics (including the MinuteClinic) when
compared to primary care physicians’ offices offer only limited, short-term and inferior
(questionable quality) health care services and therefore are not able to deliver continuous long-
term care. In spite of the debate between those who promote and oppose to RHCs, studies
illustrate that RHCs integrate simple and affordable health care services in the customers’
lifestyles (Minute clinic, 2013; Rozga, 2009). In order to support innovative primary care
providers in the market, stakeholders need to focus their discussions about the cost and
performance of alternative primary care delivery models (Coleman, Checkland, McDermott, & Harrison, 2013).

A consequence of the spread of innovative primary care delivery models is that traditional market competitors such as family doctors are changing their practices since they see the new models as a market threat (Coleman et al., 2013). Hence, family doctors are starting to add convenience as a service value to compete in the market; a survey showed that 73% are offering same-day scheduling, 48% are extending their office hours, and 31% work on weekends (Minute clinic, 2013).

Some provisions in the Affordable Care Act represent market strategies that focus on increasing competition among health care providers, including disseminating information publicly on the quality, availability, and costs of services. This promotes patients’ ability to make rational choices and promote competition among providers. This measure potentially impact price, quality, and access of health care services (Snowdon & Cohen, 2011).

A much needed strategy is the reduction of regulations that impede the emergence and expansion of innovative health care agencies that move the health care system towards one that is more efficient, accessible, and equitable (Snowdon & Cohen, 2011; Rozga, 2009). In the face of the ACA (2010) regulations increasing the demand for health care services and given the national shortage of PCP, disruptive innovations such as RHCs are an innovative alternative with “good enough services” that increase access to care and represent an integral part of the health care system (Minute clinic, 2013).
Also through the ACA (2010), the nation is being prepared to implement cost-efficient and culturally competent models of care, (Kaiser Family Foundation, 2013). The law makes incentives available to expand the health care workforce, mainly by supporting non-traditional and other health care providers, that focus on serving rural and disadvantaged communities (ACA, 2010, secs. 3510, 5205, 5302, 5313, 5507). These incentives are crucial to improve costs and availability of health care. As stated by Rice and Biles (2000), a balanced interaction between the market and the government is needed to ensure that emerging health policies promote the following: resources are optimally used, patients’ needs are met, and prices in the market are fair.

Technology and business models

Technological and scientific progress allows uncovering the causes of diseases, hence facilitating effective treatment. Health care is progressing along the continuum from intuitive to precision medicine. Intuitive medicine focuses on the many disorders that are still being studied and treated with trial-and-error work. Precision medicine involves the use of technologies that assist in understanding the causes of diseases, detecting the causes, and treating the causes effectively. Such technologies include molecular medicine, imaging technologies, and global connectivity. Work becomes rules-based and diagnosis and treatment migrate from a small group of specialized providers to a larger group of less experienced and less costly providers who simply follow the rules (Christensen et al., 2009).
In health care only when precise diagnosis is possible, consistent (rules-based) treatment is too. Technologies that facilitate precise diagnosis and treatment (precision medicine) can disrupt the healthcare. When precision medicine is embedded in disruptive business models, the potential cost reductions and improved accessibility to quality care are great. Technologies in health care can emerge from R&D departments, but others come from a different industry. By classifying diseases according to the ability to be diagnosed and treated effectively, those that can be transferred to new business models and those that need to be studied by R&D initiatives can be identified (Christensen et al., 2009).

Personalized medicine studies the biological and non-biological (psychosocial) factors that influence treatment success. Personalization involves tailoring treatment at the molecular level (doses based on differences in metabolism) or based on socioeconomic factors that require new business models to deliver care. Human behaviors such as compliance, motivation, and learning also influence treatment outcomes. These different factors affect the outcome of a treatment and cannot be solved through precision medicine. In the health care system, the level of personalization has stopped at the biological level. Therefore, new business models are needed to personalize health care delivery (Christensen et al., 2009).

A business model (BM) is an interdependent system of four components: 1) value proposition—the P&S that help clients do more effectively, affordably and conveniently a job they are trying to do; 2) resources—people, products, equipment, money needed to deliver the value proposition; 3) processes or habitual ways of working together—define how resources are combined to deliver a value proposition; and 4) a profit formula—defines prices, profit margins,
asset turns, volume, all needed to cover the costs of producing and delivering the value proposition (Christensen et al., 2009).

The disruptive innovation theory states that disruptive technologies need to be embedded in coherent business models. Thus, business model innovation is arranging the four business model components so that they can coherently deliver disruptive P&S. Business model innovation is needed for a company to disrupt the market (Christensen et al., 2009).

There are three types of business models: solution shops, value-adding process (VAP), and facilitated networks (Christensen, 2009). Solution shops diagnose the cause of complex problems and recommend solutions. They deliver value through experts and charge clients on a fee-for-service basis. Clients are willing to pay high prices for experts’ advice. Intuitive medicine (trial and error) synthesizes data from medical equipment and from personal examinations of the patient. Experts hypothesize a cause for patients’ symptoms and prescribe a treatment. If the patient responds, the hypothesis is verified, if not they continue hypotheses testing until a certain diagnosis is made (Christensen et al., 2009).

Value-adding process (VAP) businesses models transform inputs into outputs of higher value. They deliver value through processes and equipment. Processes standardization allows consistent high-quality and low-cost service delivery. Many medical procedures are VAP because what needs to be done to solve a problem is determined ahead of time. After diagnosis, treatment can be performed in a VAP organization. VAP procedures delivered by business models separated from solution shops are 40-60% below the costs of the same procedures in
business models that have VAP and solution shops services combined. VAP services charge clients on a fee-for-outcome basis (fixed-price). Examples of VAP enterprises include: retail clinics, ambulatory surgical centers, and transplant services, among others (Christensen et al., 2009).

Facilitated networks are business models that allow customers sell and buy, and give and receive information or things. The networks organize, facilitate, and maintain effective operations. They profit from membership or transaction-based fees. The value delivered is dependency among customers. Examples are organizations for the care of chronic diseases which demand significant behavioral changes from patients and their families. The success of the network is in their ability to help patients find “someone like me” with whom they can identify and whose successful approach to disease serve as a role model. Facilitated networks can improve quality and reduce costs by a similar magnitude that VAP outperforms solution shops (Christensen et al., 2009).

Hospitals need to separate their activities into different business models to serve different value propositions. Hospitals can create other hospitals or new institutions that focus on either solution shops or value-adding processes (VAP). Processes, pricing and costs systems must be separated according to each value proposition. Small hospitals can become solution shops or VAP hospitals. It is important to identify first the value proposition or the customers’ needs (jobs-to-be done). Addressing the customers’ needs perfectly (experiences in purchase and usage) requires integration of service delivery, payment systems, and locations through coherent business models (Christensen et al., 2009).
Disruptive innovations are required to make health care affordable and accessible without compromising quality. Technology enables the movement of procedures from hospitals to ambulatory clinics to doctor’s offices and to homes as these disruptors move up the market. Business model innovation is the mechanism to improve quality and cost of health (Christensen et al., 2009).

Culture

Cultural and beliefs patterns in the society are transmitted to individuals and organizations; they represent meaningful elements that dictate and legitimate social behaviors. The culture of organizations is reflected in their values and processes. Organizational change is possible if the change strategy addresses the organizational culture by effectively communicating a new vision and planning actions to implement changes according to the traditional ways of working. Such change can be diffused in the environment if social cultural patterns are also changed (Scott, 2001; Boulding, 1953).

The innovation process in organizations involve the effects of a culturally diverse idea-centered network of individuals. The cultural diversity in such networks determines the different and changing type of relations among members during the innovation process that involve various phases from idea creation to market entry. The nature of the relations among members is produced by cultural proximity or distance (i.e. similarity or difference in norms, views and practices) according to the following elements: geographic location—physical space—, institution—formal and informal rules—, organization—membership—, and cognition—concepts and mental models—. The resulting relations in the network would be conductive to
innovation if a moderate degree of cultural distance in the aforementioned elements is present (Ibert & Müller, 2015).

This view of cultural diversity in networks conductive to organizational innovation goes beyond the assumption that the whole innovation process occurs within the organizational boundaries. The study of cultural diversity dictating the types of relations among individuals addresses the potential influence of participants outside the organization that are also involved and affect the organizational innovation process (Ibert & Müller, 2015).

Therefore, an element that will be studied in the present dissertation project about innovations in health care agencies is cultural diversity. This is because cultural diversity determines the type of relations in the innovation network (i.e. adversarial and cooperative), and such relations contribute to organizational change.

2.4. Addressing the U.S. health care system challenges of access and performance

2.4.1. **Strategies to Improve Access to Health Care at the Agency-Level**

This section presents a literature review that profile the following characteristics of the health agencies’ strategies that impact access to primary health care: (a) geography, (b) target population, (c) approach to organize delivery, (d) benefits—access and performance measures—, (e) technology (ies) embedded, and (f) factors related to the adoption and implementation of the initiatives. The review highlights industry trends worldwide about agencies’ best practices for increasing primary health care access.
The literature review yielded health care access strategies from the following countries: U.S., United Kingdom, Australia, Canada, and Tanzania. Also, a review paper met the selection criteria and it focused on the strategies to access health care in several developing countries around the world (Byrne et al. 2014). All research papers reviewed represent the health care sector delivery models and technologies implemented to successfully increase access to primary health care. During the review, two categories were identified: (1) integrative strategies to access primary health care, and (2) non-integrative strategies to access primary health care.

Health services that deliver continued care

Approach 1: multiple health providers. Remote areas in Australia are benefited by the national Pharmaceutical Benefits Scheme program (PBS). Health services in remote areas obtain PBS medicines in bulk through pharmacies and clients receive the medicines they need on-site and at no cost. Between 2000-2001 and 2002-2003, $36.5 million were spent through the PBS program in people living in remote areas (Kelaher et al. 2006).

Mental health services integrated into HIV clinic in the U.S. creates a synergy that allows patients to receive both an immediate patient-centered and culturally sensitive brief intervention (mental health/psychological consultation model) and referrals to specialized services as needed. From the 963 patients that went to an appointment at the clinic, 26.1% received a brief psychological consultation by mental health professionals. Further, 43.3% of patients served by the consultation model received specialized psychiatric care (Bottonari & Stepleman 2010).
The Access to Allied Psychological Services model (ATAPS), initiated in 2003, is a component of a national initiative to address the mental health needs of rural communities in Australia. In this model, general practitioners (GPs) make referrals to allied health providers (AHPs), which include psychologists, social workers, mental health nurses, occupational therapists, and aboriginal health workers. Services offered at low-cost involve six 46-60 minutes sessions of cognitive behavioral therapy (CBT) with the option of receiving six more sessions followed by GPs review. AHPs are retained primarily by contracts or direct employment; they mainly work in GPs’ rooms. In 2006, the Medicare Benefits Schedule (MBS) began to incentivize psychologist services in rural areas. From 2003 to 2007, under the ATAPS model the number of GPs and AHPs rose steadily but dropped off after 2006. However, the number of providers working in the ATAPS is still substantial and this model complements with the MBS initiative to meet the mental health needs of Australians. Data from 2005 indicated that the rural projects of the ATAPS had higher uptake than the urban areas; 1,587 GPs referred 14,137 patients to 359 AHPs via the rural projects (Fletcher et al. 2009).

ICT technologies. In order to provide continued care, Community Health Centers implement the Telehealth model (TH) to access subspecialists. These providers are paid to work at the TH center. Primary care providers communicate with subspecialists via e-referrals (Neuhausen et al. 2012). Successful cost-effective Telemedicine applications include radiology, prisoner health care, psychiatry, and home health care. These applications have the highest potential cost benefit when the aim is increasing health care access to remote communities. Tele-radiology produces quality images and small hospitals make the service available 24 hours a day at less cost than using a radiologist when immediate interpretation is not needed. When applied
to prisoner health care, telemedicine promotes transportation and security measures costs savings. From 1997-1998, the U.S. department of corrections saved an estimated total of $100,000 by providing telemedicine care to prisoners. Tele-psychiatry is especially helpful in rural areas that present shortages of health workers. Noninvasive home health care can be delivered at homes via telephone, internet, and interactive video, among others. Telemedicine applied to home care reduces the costs of care, hospital lengths of stay, and follow-up and monitoring of chronic conditions can be provided at home (Charles 2000).

A partnership between a hospital and a community health organization initiated a patient-centered and comprehensive ear health program to serve school children in remote communities. The program included TH services that integrated an e-referral template and video-otoscopic images into the existing ear nose and throat ENT specialty services. It also involved the training by a health educator of an ear health team composed of a nurse and ENT specialists. The nurse coordinates referrals and provides follow-up services. Patients’ non-attendance to TH appointments did not hinder their ear care management by the ENT specialist. There was a twofold increase in the number of children referred to ENT specialists; the median time for ENT review was reduced from 141 to 22 days (Reeve et al. 2014). The Targeted Child Psychiatric Services program (TCPS) is collaborative consultation model that links pediatricians with psychiatrists to improve mental health services for the youth. Pediatricians call psychiatrists in the TCPS program to conduct collaborative consultations for non-emergent psychological treatment. Pediatricians can also conduct referrals by calling psychiatrists; after psychiatric services, the psychiatrist calls the pediatrician to plan follow-up in primary or specialty care.
Pediatricians alone or through collaboration provided 60% of youth with access to mental health services (Aupont et al. 2013).

Innovative operational models. Two public health programs in Canada were integrated to support the pre- and post-natal health care of minority women and their children in areas with shortages of family doctors. The pre- and post-natal nurse practitioner program (PPNP) and the healthy babies healthy children program (HBHC) that employed nurse practitioners and public health nurses respectively, conducted mutual referrals and shared clients. Family Home Visitors (FHV) are low-cost and trained paraprofessionals from the community that supported various programs’ functions: interpretation, outreach, follow-up services, health promotion and advocacy, and patient navigation. FHV built trust in the community and efficiently bridged health providers and patients; they improved access to health services to minority women by addressing language and other barriers (Meyer et al. 2010).

Newly developed services. The nationally funded health care improvement program (HCIP) in Taiwan started in 1997 to provide low-cost primary and subspecialty care in rural districts. The government contracted two private hospitals: the SMH in the north and the CCH in the south. The SMH is a fixed clinic 24/7 year round that provides preventive, primary, specialty, and emergency care, and referrals to the city main hospital to which the SMH connects through an EMR system. The CCH is a mobile clinic with preventive and primary care services available when providers at a local health center were unavailable. Through the introduction of the two clinics, the number of doctors increased from 1 to 4 and the number of nurses from 17 to 23. Therefore, the average population served by each doctor decreased by 75%; in-district outpatient
visits increased by 83.6%. Patient dissatisfaction dropped from 60% to 32% after HCIP implementation. Thus, the HCIP improved accessibility and availability, and improved patients’ utilization and satisfaction with services (Tan et al. 2005).

In Canada, an inter-professional model to deliver mental health services was embedded in an Urgent Consultation Clinic (UCC) within the Ottawa hospital. The UCC is composed of a team of one psychiatrist and at least one nurse, psychologist, or social worker that prioritizes patients, delivers a short-term mental health therapy (CBT), confirm diagnosis and assume treatment management. Patients in need of ongoing care were referred to family physicians or community-based providers. From the 143 participants referred from the ER, surgical services and inpatient psychiatry, 50% were seen within 15 days, 57.7% recovered or improved their mental health symptoms, 31.5% were referred to receive ongoing care, and there was high satisfaction with services received among participants (Kowal et al. 2011).

Approach 2: Multi-sectoral or interdisciplinary. In the Starting Early Starting Smart program (SESS) in the U.S., families with children received culturally competent mental health, drug treatment, and parenting services. A multidisciplinary group of professionals coordinate the behavioral health and follow-up services from a pediatric health setting. Caregivers in the SESS compared with the control group were 2.1 times more likely to receive mental health and 2.8 times more likely to receive drug treatment (Morrow et al., 2010).

By partnering, the Northern Illinois University and a Community College jointly oversaw the “Tricounty health center”, which delivered holistic, patient-centered services in a primary
and various community sites. Nurses (from students to Master’s degrees) served uninsured and underinsured rural clients by diagnosing and treating acute illnesses, supporting chronic disease management, and conducting public health activities, referring to medical and community services, among others. Access was increased since 70% of new clients approaching the center had no previous Primary Care Physician (PCP), the majority lived relatively close to the center, and there were high satisfaction rates for service hours, appointments’ scheduling, and services’ cultural fit (Anderko, Robertson, & Uscian, 2000).

An outreach program to increase medical appointment attendance to receive HIV care among vulnerable groups (HIV-infected, marginalized, substance users, etc.) resulted from the collaboration of the Montefiore Medical Center (university center) and a community-based organization named CityWide Harm Reduction. Acute and comprehensive HIV care was available, through referrals by the outreach team, in three settings staffed with medical and nonmedical providers. Medical appointments were kept by 29.3% of patients with the following program characteristics as success determinants: walk-in modality, drop-in center setting, and referrals made by nonmedical providers (Cunninham et al. 2007). Drug treatment integrated into HIV care settings or vice versa, interdisciplinary case management, and outreach programs improve ARV adherence and health care access of HIV-infected drug users in the U.S. Primary care providers used motivational interviewing to promote patients’ behavioral change; they also referred patients to interdisciplinary services available at the primary care setting or at other community agencies. These strategies were associated with high health care utilization, ARV adherence, and improved health outcomes (Cunninham et al. 2011). In Kenya, HIV care
integrated family planning or antenatal care services resulting in 25% HIV testing and treatment increase in women and high satisfaction rates of services (Byrne et al. 2014).

Oral health access was promoted by the Community Dentcare model in NY, a network of university and community-based organizations. The model included seven school-based dental programs, one mobile dental clinic, and four community health centers to deliver preventive and comprehensive dental care to uninsured children, adults, and the elderly. In 2003, it provided 7,000 children with holistic dental treatment (Formicola, Ro, & Treadwell, 2004). The Health Commons model in New Mexico included an interdisciplinary patient-centered approach to deliver and coordinate primary care services. Health services and community resources were integrated to deliver oral and holistic health care to underserved patients. Dental and dental hygienists from the University of New Mexico provided care to 23,600 patients at different settings (Formicola et al., 2004). In North Carolina, almost 60% of the targeted marginalized individuals were receiving comprehensive dental care through the FirstHealth model. This model was delivered by a network of three private not-for-profit dental care centers from which one was a new facility. Through foundations and other funding, families and children were covered and access health care services through the program (Formicola et al., 2004).

Collaboration among safety-net providers, non-profit hospitals, and other community organizations implemented the 5-step model to improve health coverage, expand primary care access, and coordinate supplementary services to uninsured and underinsured populations in the U.S. The 5-steps were planned by local Coalitions, and included the following: (a) ensure the infrastructure to collect access data, expand services, coordinate care, and promote cost-effective
use of providers, (b) fill service gaps by improving availability of free or low-cost health care, (c) use models to improve health outcomes, such as the patient-centered, team-based medical home to serve specific groups of people, (d) gather volunteers that provide specialty care, and (e) secure funding by collaborating with other providers. Since 2000, in various states, the main safety-net provider Ascension health has provided $45 million to its communities. In Austin, Texas, implementation of the 5-step model returned $5.5 for every dollar spent on asthma care with reductions in Emergency Room (ER) visits (40%) and hospitalizations of enrolled patients (95%) (Felland, Ginsburg, & Kishbauch, 2011).

In England, a multi-agency and multidisciplinary network of providers named the Derby Community Pediatric Service focused on reducing health inequities in deprived children. Children’s health was holistically managed by trained child health experts that coordinate services with agencies in other sectors. Also, follow-up services were available through a multidisciplinary team to manage non-attendance to appointments. Access to health care was promoted since clinics were close to the patients’ homes, children could be seen at convenient locations such as schools or police stations, patients select appointment schedule, and services were not targeted but were available to all which reduces stigma (Maharaj, Rahman, & Adamson, 2014).

In the U.S., Patients diagnosed with serious illnesses and short prognosis can receive interdisciplinary palliative care through the hospice care model. Highly standardized, patient-centered, and coordinated services are delivered to increase patients’ quality of life and to support caregivers during the patients’ care and after patients’ death. Hospice services increase
quality and decrease costs of health care for the sickest patients. By identifying treatment problems, hospice services and palliative care (HS and PC) can reduce ER visits or hospitalizations. It has been estimated that HC and PC affect 1.5% of all hospital discharges that implement the model resulting in $1.2 and $3.5 billion/year savings for Medicare patients (Meier 2011).

The ACCESS program in Tanzania aimed at improving Malaria control by ensuring effective treatment. The program included interventions at various levels and involved public-private partnerships. In the health sector level, staff were trained and supervised on integrated management of Malaria, the odds of children 5+ years old for being treated in health care settings increased from 32 in 2004 to 43% in 2008. The private drug shops were tackled by the program. In 2006, drug shops were upgraded as accredited drug dispensing outlets (ADDO) with flexible hours and charges that improved access to Malaria treatment. There was an increase of treatment in ADDOs from 31 to 43% in people 5+ years old that were referred from a health facility (Alba et al. 2010).

Community Health Centers (CHCs) in the U.S. serving underserved communities implemented the following models to coordinate and get access to subspecialty services: the teaching community (TC) and the integrated system (IS). In the TC model, CHCs maintained teaching connections with a university hospital which provided them with a network of volunteer subspecialists. In the IS model, CHCs were integrated with a public or safety-net hospital that had a network of subspecialties. In the integrated system, the CHC shared an EMR and a web-based referral system with the hospital (Neuhausen et al. 2012).

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Strategies to deliver health care services without promoting the continuity of care

Approach 1: multiple health providers.

**ICT technologies.** Private nonprofit clinics implement Telemedicine (TM) by using two-way live video consultations in rural and urban settings to provide more convenient mental health services to marginalized populations. A network of providers working together in various settings is benefited since the driving times to rural settings are eliminated and appointments’ flexibility such as walk-in is enabled. After implementation, TM shows better access, quality, and cost-efficiencies than the traditional delivery models (Neufeld & Case, 2013).

**Innovative operational models.** Trained and supervised Community Health Workers (CHWs) delivered health services at low-cost in Pakistan, resulting in 51% increase in women delivering with a Skilled Birth Attendant (SBA). In Nepal, CHWs promoted a 41% increase in child health access and 25% reductions in deaths of children less than 5 years old. In Ethiopia, CHWs improved child health care and attended home deliveries; 58% reductions in post-partum hemorrhage incidence were observed. Also in Ethiopia, shortages of physicians fostered the training of nurse clinicians to cover 63% of comprehensive emergency obstetric care. Traditional Birth Attendants (TBAs) in Guatemala increased referrals for complicated births from 5 to 21%; in Nepal, they doubled health services utilization. In Indonesia, community facilitators increased SBA utilization from 35 to 53% resulting in 33% infant mortality reductions (Byrne et al. 2014). In West Michigan, U.S. a coalition was formed to address the problem of uninsured adults’ lack of access to health care services. As a result, a local community hospital and a large charity organization opened a free clinic in a local health department. The free clinic opened one evening per week and was managed by volunteer providers such as nurses and social workers.
According to an evaluation of the clinic, the overall patient satisfaction was high and the utilization of services was improved for the community (Quiney 2012). In the Better Access Program in Australia, occupational therapists (OTs) were incentivized to serve adolescents in the outer suburbs under Medicare. OTs in a single private clinic assessed and treated patients presenting psychological distress. OTs improved psychological distress in patients and increased service utilization (Kohn, Hitch, & Stagnitti, 2012).

Open Access (OA) is a methodology to standardize processes applicable to medical practices or health providers’ teams. OA is patient-centered and focuses on matching service demands with current availability and capacity. Under this scheme patients get what they need when they need it. The five principles of open access are the following: (a) achieve supply-demand equilibrium, (b) prompt completion of the work that needs to be done, (c) increase appointment availability, (d) foster employees’ highest functioning by empowering them, and (e) maximize efficiency. It can take over two years for health providers’ teams to fully implement the open access approach in their daily operations. This approach improves access to health care since it promotes services’ expansion, and increase staff and patients’ satisfaction (Gill 2004).

Newly developed services. In Paupa New Guinea, the upgrading of facilities with new equipment and nursing providers allowed 44% lower neonatal mortality and a slight increase in service utilization. In Indonesia, maternity birthing homes staffed with Skilled Birth Attendants (SBAs) that have communication to clinics by radio increased delivery care from 17% to 36% (Byrne et al. 2014).
The Marriage Checkup (MC) in the U.S. is an informational marital service that includes a mental health assessment and feedback. The assessment involves an interview using Integrative Behavioral Couple Therapy (IBCT). The feedback takes place two weeks after the initial assessment and is based on Motivational Interviewing (MI). The MC treatment seekers were persons in mild to moderate relationship distress and 63% were new users (Morrill et al., 2011).

Approach 2: Multi-sectoral or interdisciplinary. Project Connect (PC) is a collaborative program between probation and mental health authorities to deliver mental health and substance use services to youth in juvenile probation. PC involves agreements for referrals between probation and mental health agencies and the training of probation officers (POs) to screen for mental health needs, and to facilitate and monitor access to the services needed. Youths in PC were 2.5 times more likely to access mental health or substance use services than two months prior to PC (Wasserman et al., 2009).

The integrative strategies identified through this literature review are the most desirable as they can potentially reduce the waste of resources and improve patients’ health outcomes. These integrative models have their origin on the agencies’ leadership that conduct a needs assessment in specific contexts and determine the type of partnerships, technologies, business models, and/or necessary facilities to promote access to health care services. The agencies’ leadership is also necessary to foster community and financial support. In particular, technologies are crucial for connecting remote areas with health services available in other locations and for the coordination of multiple health and social services.
Moreover, the innovative operational models are useful to address the lack of health providers; the training and supervision of non-traditional health workers is an effective and cost-efficient mechanism to improve access to primary health care. The integrative and interdisciplinary health models are particularly adequate to comprehensively tackle the barriers of access to health care services; the professionals’ joint efforts focus on delivering holistic, patient-centered, and culturally competent health care.

These innovative strategies have been and are being implemented by the health care agencies around the world and their efficiency mainly comes from collaborative efforts among multiple providers. The expansion of primary health care services through the restructuring or creation of new health organizations appears to be a difficult task given the lack of financial resources to achieve such goal. Therefore, in this context, decision-makers and other stakeholders in the health market can capitalize their efforts on disseminating the integrative successful strategies to increase access to primary health care. Most of these strategies are cost-efficient and can be implemented through the existing health care agencies.

2.4.2. DISRUPTIVE INNOVATIONS IN HEALTH CARE

Disruptive innovations provide a new approach to improving quality and access to health care services, particularly for low-income and disadvantaged populations. Scientific, peer-reviewed articles from 2000 to date were reviewed. The examples of disruptive innovations implemented in health care agencies spanned a wide array of health care issues and levels of care, including heart and other specialty care, surgical care, dental care, primary care, and chronic care.
The specialty heart hospital is a disruptive value-adding processes business model. By focusing only on heart care, compared to non-disruptive hospitals they deliver care that is 60% more affordable. To promote the hospitals’ outsourcing of standardized health procedures to focused specialty hospitals, the reimbursement schemes must change. Hospitals are essentially needed for intuitive medicine and an adequate reimbursement of such services would generate opportunities for more efficient hospital business models (Christensen, 2008).

The introduction of free-standing surgical centers are representative of disruptive innovations. For example, the initiative of the Mayo Clinic to transfer its adult cardiac surgical services to a Value-Adding Process (VAP) business model resulted in improved efficiency and quality of care, reduced costs, and improved health outcomes. Hospitals work under solution shops models in which diagnosis to complex problems is given and solutions to problems are recommended. Services in hospitals structured as solution shops tend to be costly because the delivery of the value proposition relies on experts’ advice. Cardiac surgical patients have already received a diagnosis for their problems. The VAP business model is more adequate for patients who only need to receive a validated standardized process to rectify the problem. VAP models reduce variation in processes by focusing on delivering high-quality but limited procedures (Cook et al., 2014). Similarly, a study by Munnich and Parente (2014) showed that surgeries performed in Ambulatory Surgery Centers (ASCs) are a low-cost alternative to inpatient hospital surgeries. This disruptive model of care that allows for better efficiency of services resulted in less procedure time, lower costs, and increased quality of care.
Epital health (EH) is another disruptive innovation in chronic care. Epital health (EH) is a patient-centered health care that uses telehealth applications. In EH, health care services are controlled by empowered patients and health providers who actively collaborate in the process of prevention and care. The EH model enable video applications in tablets and PCs, provides a catalogue of service availability, and include self-monitoring devices to engage users in their own health care. A call center is the referral system which is made available 24/7 to connect patients with primary and specialists services. Also, mobile clinics are accessible to reduce the burden of ER and hospital use. This health care alternative promotes collaborations among providers but its application has been small (Phanareth, Christensen, Vingtoft, & Kayser, 2013).

One technological application that is bringing disruption in health care delivery is video. The implementation of video in health care involves 1) governing and managing video applications in health care, 2) and customizing the use of video as a value proposition that interconnects multiple health care providers. The benefits of using video across primary and secondary health and other providers include enhanced access to continued care and quality of health care, cost benefits for patients and organizations, and empowerment of patients, among others (Hoare, 2014).

Asynchronous medicine (AM) uses electronic data to change the conventional health care models. AM is a new model of care that uses a facilitated network which enhances the role of patients and allow providers to more efficiently use their knowledge and skills. AM can be integrated in collaborative models of the HCS (Yellowlees et al., 2011). For example, in Asynchronous Psychiatry (AP), a primary care provider (PCP) refers a patient to the AM where a
video of the patient is recoded. The video and other clinical information are shared to a psychiatrist via web, who examines the data and writes a diagnostic and a treatment plan which he/she shares through the web. The PCP downloads the psychiatrist’s report via web. AM is disrupting the health care system (HCS) because the HCS services becomes less expensive, more accessible and efficient.

Orthopedic care has become costly and complex; many patients requiring orthopedic care face limited access to such services. There are four areas in which disruptive innovations can be implemented to transform orthopedic care: 1) diagnostics, such as mini-fluoroscan; 2) surgical/treatment technologies, such as Surgical Implant Generation Network (SIGN); 3) process of care—expanded roles of physician assistants (PAs) and nurse practitioners (NPs), and 4) delivery system—patient-centered care models. These applications were initially inferior compared to the traditional delivery processes in orthopedics, but overtime and with improvements in technology they have improved to the level of attracting the majority of patients in the market. Disruptive innovations have reduced health care spending in the field of orthopedics (Hansen & Bozic, 2009).

Dental therapists can disrupt the dental care in the U.S. They can provide basic dental care to under-utilizers. Dental therapists are less trained professionals and deliver fewer services than dentist. They provide simple, convenient, and low-cost care that appeal to underserved populations and potentially address health disparities by increasing access to dental care. Those underserved populations that value the services of dental therapists include children, migrants, the elderly, low-income populations, and racial minorities, among others. The disruptive nature
of dental therapists indicates that the system would benefit if dentists cede some of their most basic roles to this less-skilled providers. Dentists can still deliver comprehensive care (Edelstein, 2011).

Dental therapists face opposition of professional dental associations who favor the status quo. They fear that the services provided by dental therapists are of low quality and risk the safety and health of populations. Also, they want to avoid the replacement of dentists by dental therapists, as they believe it can happen. For them, dental therapists will not be able to address health care disparities because disparities have nonfinancial causes (i.e. patients do not approach clinics). Support for the training of dental therapists, the market for their services, their acceptance by the public, coordination among providers by the use of health information technologies, and novel financing systems would facilitate the development of this disruptive innovation (Edelstein, 2011).

The value proposition of retail clinics is to balance the quality, access, and cost of primary health care. Retail clinics represent disruptive health care services that were of initially considered to be of inferior quality but simpler and more affordable than traditional primary care. Retail clinics are an accessible alternative to primary care because they employ non-physicians for the provision of primary health care. The privately insured, those patients paying high deductibles, and uninsured/poorly insured may be better incentivized to seek this type of low-cost health care services. The presence of retail clinics in the health care market can also improve quality of primary care by promoting competition among providers (Pauly, 2011).
For example, the MinuteClinic is an innovative retail health clinic (RHC) located in CVC pharmacies in the U.S. These clinics provide basic or episodic health care services on a walk-in basis within a new business model that employs registered nurses (RNs) and/or physician assistants (PAs) for care delivery. The value proposition of the retail clinics is providing health care that is patient-centered and low cost, about 30-50% less expensive than the equivalent health services offered by a PCP or doctors’ offices (Minute clinic, 2013; Rozga, 2009). The MinuteClinic is also convenient to patients because it is close to customers’ homes, open late and on weekends, and patients can easily pick up prescription medicines in the same store. Eighty percent of patients surveyed by CVS said that they feel “extremely satisfied” or “very satisfied” by the services provided in these innovative clinics (Minute clinic, 2013).

2.5. The adoption of innovations in health care

2.5.1. Innovations in health care

Innovation is defined as the ideas, objects, or practices that are perceived as new by an individual or another unit of adoption (adopters) (Fleuren, Wiefferink, & Paulussen, 2004). Innovation can also be defined as an element within the industries’ evolution analysis. Christensen (2011) indicated that innovation is a change in the technology used by an organization to transform manufacturing, engineering, marketing, investing, and/or management processes.

An innovation in healthcare is a deliberate and intentional effort to apply new (relative to adopters) ideas, processes, products, or procedures within a group or organization to benefit individuals and societies (Barnett, Vasileiou, Djemil, Brooks, & Young, 2011). For instance,
innovations can be new services, forms of working, and/or technologies that provide sustainable and competitive benefit to the organization (Barnett et al., 2011; Porzsolt, Ghosh, & Kaplan, 2009).

Other examples of healthcare innovations include the following: the invention of new drugs, therapies, devices and tests for diagnosing and treating diseases; new surgical procedures (surgical checklists), computer systems, and clinical interventions; new forms of health professionals’ training (professional roles), patient education, health services management, and financing and delivery models, among others (Cuttler, 2010; Dixon-Woods, Amalberti, Goodman, Bergman, & Glasiou, 2011; May, 2013).

The ability to innovate is a priority in agencies from every industry because it creates a competitive advantage. Innovations enhance effectiveness, efficiency and sustainability of agencies. Ignoring the need to innovate will defeat agencies in the marketplace (Lazarus & Fell, 2011). In order to survive in the market, the health care agencies’ norms and actions related to the provision of services need to be transformed through the implementation of innovations (Hargadon & Douglas, 2001). The healthcare industry need to adopt a culture of innovation especially in the face of pervasive systemic inefficiencies.

In general, innovation is assumed to be a positive element in health systems. However, innovation can also bring negative effects on patients and communities and generate innovation implementation and evaluation challenges. Dixon-Woods et al. (2011) argued that the rapid diffusion of innovations, whose efficacy has not been tested, exist under weak arguments such as any attempt to solve the problem is “better than doing nothing” (Dixon-Woods et al., 2011, p.
Sometimes such innovations offer hope in environments of despair, but can pose risks to patients receiving the innovations. Innovations that have not been tested also waste the investment made to create the innovation by not generating improvements in the quality of services.

Similarly, it is common to find healthcare innovations that were created from irrational decisions. Health systems are often pressured by internal and external factors (emotional, political, and economic forces) that weaken the ability of decision makers to rationally select and prioritize innovations. Porzsolt, Ghosh, and Kaplan (2009) mentioned that many health innovations, tested for its safety, continue in the market without being evaluated for its efficacy. They state that “lack of an innovation’s efficacy is economic harm” (Porzsolt et al., 2009, p. 2).

Even when the innovation’s attributes such as value, utility, and safety can be ascertained, innovating is a complex process. Not understanding such process is one of the reasons why some evidence-based innovations are slowly or never implemented. As Birken, Lee, and Weiner (2012) indicate, the gap between health care evidence, which promises improvement in health care, and its application in the field is a matter of inefficient healthcare innovations’ implementation. In the following section, the innovation process is reviewed. Also, the current status of the literature about the innovations process in agencies is provided.

2.5.2. THE INNOVATION PROCESS IN AGENCIES

One of the most prominent theories to study the innovation process is the diffusion and adoption of innovations model by Rogers. The model applies to individuals as adopters of the innovation, and has been used in various fields of study. The process of adoption of innovations
involve the following five stages: 1) create awareness of the innovation through multiple communication channels, 2) generate interest in the innovation (in the adopter) through the facilitating perceptions of need, 3) evaluation of the innovation’s attributes and decision to implement it, 4) actual implementation of the innovation, and 5) Use the innovation on a continuing basis. According to the Rogers’ model, the perception of individuals about the innovation’s attributes in stage 3 would determine the adoption rates of such innovation (Sahin, 2006).

When trying to translate the Rogers’ model as it applies to agencies, it offers a limited framework for the study of the adoption process. The model overlooks the complexities of agencies as the unit of analysis (Kyratsis, Ahmad, & Holmes, 2012). Still, agencies that successfully adopted innovations exist in the market. Pertinent questions to ask include the following: 1) whether the stages of adoption that apply to individuals (knowledge-awareness, persuasion-impression, decision-outcome, implementation-use, and confirmation-continued use) also apply to agencies; and 2) whether the factors involved in the stages of the innovation process commonly studied in individuals also apply to agencies.

Answers to the questions about the adequacy of the diffusion and adoption model to examine the process of change in agencies are emerging. The validity of the model has been questioned because of its lack of objectivity, its development from the education field (thus not being applicable to other fields), and its application to single case studies. Kyratsis et al. (2012) believe that the Rogers’ model, by focusing on individuals and not on agencies, makes it inadequate to analyze the interactions between the innovation, local actors, and complex
organizational and contextual factors. Also, Barnett, Vasileiou, Djemil, Brooks, and Young (2011) criticized the linearity of the model. For example, the assurance of the innovation’s attributes such as “relative advantage” does not always lead to the innovation’s adoption in a linear way; evidence of the benefit of an innovation is subject to debate and negotiations in the health care system.

The tradition of innovation studies in health care is relatively young. Since 1990, researchers have been investigating innovations in the healthcare industry. Fleuren et al. (2004) stated that there are very few well designed studies on innovations in health care. Empirical studies present mostly case studies. Also, there are very few innovation theories that can be used to explore the innovation process in the healthcare industry. In addition, the innovation process is dynamic and complex, but standardized procedures to measure the factors that impact the innovation process are lacking (Kyratsis et al., 2012; Fleuren et al., 2004).

Dixon-Woods et al. (2011) suggested that the diffusion, adoption, and implementation of innovations in different contexts must continue being studied. Cuttler (2010) indicated that the innovation process involves diverse factors that impact innovation decisions within agencies. Hence, it is believed that a successful innovation process would depend on a strategy that addresses the factors that influence such process. Fleuren et al. (2004) proposed to generate a common (basic) model to measure the factors of the innovation process in the health care field. The innovation process in health care agencies may fail if the innovation strategy does not address the factors involved in the adoption of innovations (Dixon-Woods et al., 2011; Fleuren et al., 2004; Omachonu & Einspruch, 2010). Other causes of failure in the innovation process
include the following: the innovation strategy focuses on factors that are irrelevant to the innovation process; the innovation strategy does not influence relevant factors; and data on factors impacting the innovation process was generated from non-user interviews making a bad judgment of the factors’ importance (Fleuren et al., 2004).

This research study proposes to explore the innovation adoption process in health care agencies. The adoption process involves the selection and implementation of innovations by an agency. Agencies adopting a specific type of innovation and that are almost equal in their characteristics and functions may show different innovation outcomes. Hence, understanding the innovation process is as important as determining the factors that influence such process. Also, the adoption process for innovations at the agency-level can present challenges that were not mentioned in the Rogers’ model focused on individuals.

For example, given that the adoption of innovations is a context-specific process, agencies in the health care industry are complex entities whose decisions are expected to be subjected to negotiations among multiple stakeholders. Therefore, the adoption of innovations in health care agencies is an uncertain, non-linear, learning process. In health care, the innovation process may take years. The agency’s decisions to implement an innovation are usually the result of pressures that accumulate overtime (threshold of dissatisfaction). Managers’ have to commit and adapt the innovation and the process to address the internal and external challenges to innovations adoption (Van de Ven, 1991).
The following section reflects a review of the literature on the factors involved in the innovation process within agencies. The innovation process was reviewed regardless of the type of innovation being implemented and the industry in which the agencies operate. Of interest was to uncover the basic framework for the adoption of innovations in agencies that can be adapted according to external and internal challenges found in the health care field.

2.5.3. FACTORS RELATED TO THE ADOPTION OF INNOVATIONS IN AGENCIES

The adoption and implementation of innovations at the agency-level in any industry involves a complex decision-making process. Buschow, Nolle, and Schneider (2014) indicate that there is no single theory with predictive capacity that can be used to generate hypotheses in implementation research (i.e. the implementation of innovations in agencies). However, there are many frameworks that categorize the factors that are hypothesized to impact the implementation of innovations in agencies. Previous approaches to study the adoption of innovations had focused on individual-level factors ignoring other internal (i.e. organization) and external factors. Especially useful are the frameworks that study factors at multiple levels of influence because they overcome the limitations of previous approaches to study the adoption of innovations (i.e. the diffusion of innovations theory).

In the following paragraphs, the literature on the multiple factors shaping the adoption of innovations in agencies across industries is presented. The type of innovations being implemented is specified. There is a wealth of literature examining adoption of innovations; a discussion of business models, business strategies, and other factors from this literature is also presented. Finally, a section on the factors at the micro-level is also discussed.
Multiple factors influencing the adoption of innovations

Barnett, Vasileiou, Djemil, Brooks and Young (2011) conducted a qualitative study to know the perceptions of health care innovators about the factors involved in the innovation process within agencies. They found that scientific evidence that links innovations with health outcomes is crucial to the adoption of innovations. Inter- and extra- organizational partnerships generate trust and mutual support that advance the innovation’s potential for adoption, sustainability and diffusion. Important for the diffusion of innovations are the innovators that function as champions. A champion provides the leadership and resources required to transfer new knowledge and advance the innovation. In addition, organizational receptiveness, available resources, promotion of innovations, economic-related attributes of the innovation, regulations, accountability strategies, and societal ideologies impact the creation, implementation and spread of innovations (Barnett et al., 2011).

Fleuren, Wiefferink, and Paulussen (2004) reviewed the literature and interviewed implementation experts to identify and generate consensus on the most relevant factors involved of the innovation process in the health care field. They listed 50 determinants of innovations implementation that included factors related to the socio-political context, the organization (internal policies), users, the innovation, and the facilities where the innovation would be adopted.

Organizations change due to both the intentional decisions of managers and inertia or crisis. Through literature reviews, it was found that the type of change and the process of change in organizations depend on internal or organization-level factors such as their life-cycle of
development, size, governance structure, and ability to carry out activities within the change process. For example, established organizations (old) are less likely to change than emerging organizations. Also, large firms have greater access to resources than small firms which increases their ability to change. However, there is also evidence that large firms have a structure that makes change cumbersome. Environmental or external factors such as the market uncertainty, inter-agency alliances with public institutions and political actors, and government policies also affect organizational actions that derive in organizational changes (Barnett & Carroll, 1995).

The book publishing industry (non-disruptive innovations). Buschow et al. (2014) surveyed a representative sample of German companies in the book publishing industry to determine the relevance and influence of multiple factors on managers’ decisions to adopt technologies. Based on the available literature, Buschow et al., (2014) divided the factors as follows: environmental or macro-level factors, organizational or meso-level factors, and manager or micro-level factors. Factors related to the market and stakeholders are within the category of macro-level influence of adoption. The structure, resources, culture and communication are important determinants of the adoption of innovations found at the meso-level. Additionally, the managers’ characteristics such as demographics and attitudes towards innovations are studied within the micro-level domain (Buschow et al., 2014).

According to the empirical data, the most influential factors that promote decisions about adopting innovations in the book publishing industry are the following: 1) individual-level: managers’ attitudes towards innovations, expertise, and leadership; 2) organization-level: the culture or traditional processes and values that have to agree with the innovation strategy, and
Communication within industry networks and facilitated shared learning about innovations appeared to be a strong determinant of innovations’ adoption. In practical terms, facilitating the favorable managers’ evaluations about the innovation and generating efficient external communication policies may positively affect the adoption of innovations (Buschow et al., 2014).

Health care industry (non-disruptive innovations). Through a systematic literature review Chaudoir, Dugan, and Barr (2013) determined that the following five constructs categorize the factors related to the successful implementation of innovations in health care: structural, organizational, provider, patient, and innovation factors. The structural factors refer to the community or sociocultural context in which the organization exists. Examples of structural factors include the physical environment, social norms, public policies, the economy, and the infrastructure.

The organizational factors include vision, leadership, a culture that values innovation, knowledge sharing and use, and employee satisfaction. The provider factors include providers’ attitudes towards the innovation, self-efficacy to implement the innovation, and behavioral intentions to innovations implementation. The characteristics of the innovation are also factors that influence the innovations implementation, including its relative advantage, compatibility, complexity, observability, and evidence on innovation efficacy, among others. Additionally, the patient factors are the patients’ characteristics, attitudes, and motivation to use the innovation.
Patients affect the variance of innovations implementation success; it is crucial to determine if the innovation is adequate for the patient population (Chaudoir et al., 2013).

Implementation outcomes can be adoption, fidelity, penetration, and sustainability. Adoption is the intention or action to use an innovation. Fidelity is the degree of an innovation’s implementation according to established protocols. Penetration is the degree to which the innovation is integrated into the organization’s processes. Sustainability is the degree of institutionalization of the innovation (Chaudoir et al., 2013).

Chaudoir et al. (2013) identified 62 measures (of the factors) though the systematic literature review. The majority of measures corresponded to organizational, provider, and innovation factors; very few measures were available for structural and patient factors. Chaudoir et al. (2013) also attempted to review the validity of the measures, which is data on the relationship between the measure and the innovation implementation outcome. They found that very few measures have been linked to innovation outcomes. However, the authors presented a list of all the scales (up to 2012 and according to their article selection criteria) to measure the factors related to the adoption of innovations in health care (Chaudoir et al., 2013).

Ament et al. (2012) presented a protocol to study the sustainability of two successful innovations implemented in hospitals. They created interviews according to the Consolidated Framework Implementation Research (CFIR) model developed by Damschroder et al. (2009) (through a literature review), which combines the constructs from multiple implementation theories. The model classifies 39 factors within the following five constructs or categories: the innovation characteristics—source, evidence of effectiveness, relative advantage, adaptability, trialability, complexity (implementation), design, and cost—; inner setting—structure of the
organization, networks and communications, culture, and implementation climate—; outer setting—market needs, external networks, peer pressures, and external policies and support—; adopters—attitudes towards the innovation, self-efficacy, stage of change, commitment, and personal traits—; and the innovation process—planning, engaging, executing, and evaluation— (Damschroder et al., 2009).

The 39 factors within the five categories can be explored to describe, among other innovation implementation outcomes, the innovations’ sustainability (i.e. the effects of factors and implementation strategies on innovation outcomes). According to the authors, the study of the sustainability of the innovation is important because strategies can be generated to maintaining the positive changes of and access to healthcare alternatives (Ament et al., 2012).

Craftsmanship (non-disruptive innovations). Hernandez-Giron, Dominguez-Hernandez, and Caballero-Caballero (2007) used an existing framework, of the factors influencing innovation in organizations, to study innovations in the craftsmanship business in Mexico. They conducted a multiple linear regression analysis to identify the significant external and internal factors that affect the implementation of innovations in Mexican organizations. Internal factors included the following: stakeholders and customer value, leadership, technological climate, structure, traditional work patterns, employee’s knowledge and skills, resistance to change, product-market strategies, and strategies of costs and quality. External factors were customers, providers, public and private institutions, research and development organizations, competitors, and investors or funding agencies. Additionally, technological progress, organization size, age, sector and location impacted the new product development. Networking with other organizations
and knowledge sharing about innovative products promoted the implementation of innovations by organizations. These market alliances reduced uncertainty and risks, and enhanced securing resources for the successful implementation of innovations (Hernandez-Giron et al., 2007).

Public administration (disruptive innovations). Barahona and Elizondo (2014) used the disruptive innovation theory (the theory) and data from multiple sources to qualitatively describe the case of adopting e-procurement platforms in the Costa Rican public administration system. The disruptive innovation theory is explained as a model that suggests the effective reorganization of systems by addressing external and internal factors that enable the use of disruptive technologies.

According to the Disruptive Innovations Theory (DIT), managerial decisions about the adoption of innovations in a given industry should consider internal factors such as the selection of suitable organizational and operational business models. The progress in systems may emerge from disruptors that start with new technologies and new business models (suitable to the new technologies), and not from the adaptation of mainstream service providers that try to adapt new technologies (Barahona & Elizondo, 2014).

Meso-level factors: Factors found in the organizational structures

Business model. Corkindale (2010) review the literature to center the importance of business models to market innovations effectively. A business model is part of every successful enterprise and a determinant element in the sustainability of innovations. A business model is the schematic implementation of a business strategy and its functions are five: 1) determine the value proposition or products and services (P&S), 2) identify the market segment or clients, 3) define
the value chain to distribute the P&S, 4) describe the revenue generating mechanisms, and 5) specify the growth strategy (Corkindale, 2010).

Three additional elements in the business model are needed in order to successfully implement an innovation, specifically disruptive innovations. First, it has to specify if the revenues will be absorbed by 1) the research organization that created the innovation, 2) the organization that implements the innovation, or 3) to the community, which funded and supported the research organization. Second, there has to be a potential customer segment that will use the innovation. Finally, a network of organizations are necessary to commercialize the innovation (Corkindale, 2010).

The selection of a business model impacts the performance of an organization. There are two sources of value creation that are the basis for business models’ design: 1) efficiency that is reflected in costs reductions, and 2) novelty to deliver value to new customers or connect existing customers differently. The business model is the mediator between the innovation and the market. The business model provides the logic to implement innovations (Corkindale, 2010).

Innovations can be offered through four product-market strategies to existing or new customers: creation, expansion, substitution, and diffusion. Creation is when an innovation enters a new market. Expansion is when the innovation introduces new uses of existing P&S to provide solutions to problems no previously undertaken. Substitution is when the innovation replaces existing P&S. Diffusion occurs after replacement of an old P&S and is when the innovation’s impact is extended to new features and customers. Continuous innovations are commercialized through substitute strategies. Disruptive innovations enter the market through expansion (Corkindale, 2010).
The adoption of innovations should be targeted according to the customers’ needs. The customer’s segments are the enthusiasts, visionaries, pragmatists, and conservatives. In order to gain customers’ segments, enterprises need to adopt strategies that follow the cycle of customer segments. For instance, enterprises trying to market disruptive innovations should not seek to replace existing P&S by targeting pragmatists that embrace the status quo. This would make disruptors compete with leading companies (Corkindale, 2010).

The idea of adopting the correct product-market strategy for organizations is to minimize two risks related to adoption of innovations: risks of failure of the technology, and risks that the customers do not buy the technology. In order to be successful, organizations commercializing disruptive innovations should enter the market with small risks (the expansion market) and grow their innovations from there until they improve to the point of creating a chasm/disruption and enter the substitute market (Corkindale, 2010).

Additionally, because organizations exist in a network with other organizations, the successful commercialization of innovations is also dependent on this network support. Other organizations would support an innovation if it is aligned to their interests. The selection of the business model needs to consider the interests of these stakeholders (Corkindale, 2010).

The detached-market, low-end encroachment model. This model explains how a new product addressing a different customer need than organizations in the mainstream market, can enter the market over time at the lower-end. Sometimes, the new product or service (innovation) can be sold at a high price because it addresses a detached or new customer need (from the mainstream market). In other words, the new P&S may have inferior performance when compared to the core functions of the mainstream P&S but it addresses a new customer need.
The new product improves its performance (features and functionality) over time to the point that it can fulfill the needs of the less demanding customers in the mainstream market (Druehl & Schmidt, 2008).

The diffusion of the innovation (new P&S) in the detached-market, low-end encroachment model is determined by the P&S characteristics and the potential customers’ willingness to pay for it. The diffusion of this type of disruptive innovation is important for determining the proper strategy to market the innovation. This model demonstrates that there are some types of disruptive innovations that may be initially expensive due to their exceptional performance in alternative attributes (Druehl & Schmidt, 2008).

After the innovation starts stealing customers from the mainstream market, it is due to improvements in both performance (on the core attributes that are traditionally offered by incumbents) and affordability measures. Disruptive innovations are usually introduced to the market by entrepreneurs or emerging enterprises that are not participating in the traditional market, but leading or existing companies can also adopt disruptive innovations. Disruptive innovations can focus on a completely new market, or on the low or high-end of the traditional market (Druehl & Schmidt, 2008).

The detached-market low-end encroachment model or strategy does not generate an immediate response from the incumbents because the disruptive innovation is focusing on a completely different set of P&S attributes (detached). However this strategy can attract other type of competitors also implementing disruptive innovations in detached markets. Incumbents can cannibalize their resources to implement disruptive innovations by: 1) adopting breakthrough innovations that enter the market directly from the high-end, 2) adopting disruptive innovations
with the fringe-market strategy—focusing on a new market or low-end users, and 3) adopting a
detached-market strategy that can eventually enter the mainstream market from the low-end
(Druehl & Schmidt, 2008).

The pricing strategy to market the innovation. Burton and Haggett (2007) wrote a white
paper in which they reported on the pricing strategies’ impact on the success and failure of
innovations’ implementation in any business. The perspective of the authors was to clarify the
reasons for success and failure of innovations that are introduced in the market. By centering on
the customers’ needs (instead of focusing on the technology), organizations can plan a pricing
strategy and a marketing message to improve the adoption of innovations.

The first step in creating a strategy to promote the adoption of innovations is to study the
customers’ needs. Targeting the right market segment, establishing a fair price for the
innovation, and delivering value are the crucial elements for the successful adoption and
acceptance of the innovation in the marketplace. Since every innovation is comparable to
existing products and services, the value that the innovation should bring to the market is a value
advantage: financial benefit for customers. The value advantage is a determinant of the
innovation’s adoption but there are other attributes of the innovation that enable adoption:
observability, complexity, compatibility, and trialability (the option to pilot-test it before full
implementation) (Burton & Haggett, 2007).

The steps to generating a rational pricing strategy for the innovation are the following: 1)
determine the value advantage over existing solution, 2) establish the range of customer value
(price range), and 3) offer a price according to the nature and life cycle of the innovation and to
the customers’ psychological balance of risk/benefit. The final price has to represent an incentive
for customers to adopt it. If the adoption of innovations is successful, the organization experiences growth in their profit margins and return of investment (Burton & Haggett, 2007).

Management strategies.

**Strategic thinking.** The advent of disruptive innovations in markets has an effect on the fate of organizations; organizations need to adapt to market changes in order to survive. Some markets are changing due to shifts in customers’ needs, emerging technologies, and introducing new business models and competition. These factors pose threats to an organization’s survival. There is a management framework that can guide organizations to accomplish effective survival strategies through strategic thinking. Such management framework was created by Cravens, Piercy, and Baldauf (2009) through gathering data from scientific research in several disciplines. The management framework can guide organizations’ strategic thinking (decision-making) to study the market and determine the business strategy requirements, that include vision, business model, and product-market strategy (Cravens et al., 2009).

Strategic thinking in organizations involves four inter-related stages: 1) developing market strategic capabilities, such as a market oriented culture, market sensing, and customer-centered processes; 2) defining market changes, including innovations, and new business models and competition; 3) determining if there is a new market and examine new customer value requirements; and 4) developing product-market strategies according to relevant markets, along with a new vision and an strategy for its implementation. This framework is theoretical only, and according to Cravens et al. (2009) it requires further empirical research to test every stage in the model for organization’s strategic thinking.
Appreciative inquiry (AI). Drew and Wallis (2014) conducted a literature review in the use of Appreciative Inquiry (AI) as an strategy to facilitate organizational change. Appreciative inquiry is a framework based on the fundamentals of positive psychology to assist in the restructuring of organizations (Drew & Wallis, 2014). AI involves the acknowledgment of the organizational strengths and assets to enable the organizations change. This restructuring will require changes in the strategic plan and culture, and the implementation of disruptive innovations. Globalization, sociopolitical changes, financial difficulties, and technological advances are promoting organizational reform. Organizational leadership at all levels in the organization is necessary to initiate the process of change. AI applications can stimulate organizational change. First, AI develops a sense of urgency in organizations; it generates tension that will generate organizational change efforts. That tension can come from a crisis such as expansion of goals, indicators of negative performance measures, or unexpected financial loss. The organization would have two options: follow a negative and immobilizing cycle or follow the AI optimistic principles focused on the creation of innovative solutions (Drew & Wallis, 2014).

AI follows a questioning approach to call to examine the organization’s strengths and opportunities for change. AI is a tool of “social constructionism and of cultural change” (Drew & Wallis, 2014, p. 6). The AI approach can help the organizations’ change efforts by 1) increasing stakeholders’ commitment and participation to change, 2) reducing resistance to change, 3) encouraging positive thinking and enthusiasm by focusing on organizational strengths, and 4) promoting organizational innovation. AI changes the mindset of people by encouraging creative thinking, and supporting self-organizing change through a process of inquiry. AI techniques can be used within strategic planning efforts to include the following: interviews, AI summit, and 4D
cycle. When the organizational change involves a high level or restructuring, the 4D cycle and the AI summit are recommended (Drew & Wallis, 2014).

The AI summit can last up to four days; it ensures large-group interaction and “collective consciousness.” Large changes in organizations are multidimensional and require systemic reform. The AI summit brings together stakeholders in the industry that can influence and impact the organizational change for both short- and long-term outcomes. The whole group discusses the expectations, interests, and experiences of stakeholders to promote systemic learning and adjustment. The 4D cycle can be used during the AI summit to facilitate knowledge-generating conversations and learning among participants that focus on planning for the future. The 4D cycle includes four phases: discovery—identify the organization’s strengths, dream—generate a shared vision of the future, design—propositions for organized actions towards the vision, and destiny—participants commit to the change process. This AI process can lead to cultural change in organizations. The AI facilitates the emergence of change agents that would formulate the organization’s strategies for change implementation and management (Drew & Wallis, 2014).

**Shared decision making.** According to May (2012), the implementation of innovations in the health care system involves complex social-related efforts. The implementation of innovations would reflect a certain degree of collaboration and conflict among agents that attempt to address contingencies in specific social contexts. The innovation’s implementation depends on organizational members investing efforts to integrate and conduct the work that the innovation brings. Also there has to be trust in the statistical evidence of the innovation’s effectiveness among the staff. Shared decision making and continued commitment by the staff is also needed. In other words, the implementation of innovations depend on the organization
members’ shared decision making process and on collecting communal and individual perceptions on the utility and value of the innovation (May, 2013).

Micro-level factors: managers, staff, and the characteristics of innovations

Managers and leadership. Lazarus and Fell (2011) wrote a perspective paper where they listed innovation concepts that, if being adopted by managers in the healthcare market, would foster creativity and collaboration to meet the people’s needs. They indicate that incremental, long-term changes lead to improvement opportunities in the health care system. Managers are encouraged to foster and value everyone’s ideas because they can also lead to innovation. Inspiration to innovate and to look at the problem differently can be found across industries since the goal is to apply the thinking involved in successful practices. Multidisciplinary collaborations as well as mass collaboration can generate innovative ideas.

Organizational change and the involved variables are specific to context. However, leaders and the art of leadership are common elements involved in the change process of every organization in every industry. Leaders’ actions are determinant in the successful implementation of change within organizations (Hickman, 2010).

As discussed in section 2.4, there are current efforts to change the health care system towards one that is more responsive to the needs of the population (in terms of access and efficiency). The individuals that are carrying those efforts and envisioning a new health care system are leaders. These leaders guide others actions and facilitate a change in the current system’s structures.
Leadership in the health care system can be seen as a network of leaders, followers, supporters, and opponents that interact; the context is dynamic and organizational changes accumulate. Hence, leaders in the health care system need to assess and understand the system as a dynamic and complex field where interactions of many actors shape the current behaviors. For example, leaders that evaluate the economic, political, societal, and technological factors that impact the organizations’ interest (and need) to change can develop strategies to restructure the organization. Such organizational restructuring is key to promote a better fit between the organizations’ activities and the demands of regulators, and social and industry norms. Organizations modify their functions either incrementally or radically to cope with the constantly changing demands of customers, suppliers, competitors, and other stakeholders in the field (Hickman, 2010).

Also, to implement organizational change, leaders need to think constructively and act responsively during the change process. Additionally, they have to honestly and respectfully negotiate about change with employees. When leaders know the organizational culture, the market, and the workers, can communicate a new vision about the future of the organization and can plan (in collaboration) the necessary actions to mobilize organizational change (Hickman, 2010).

In the implementation stage, leaders evaluate the organization’s progress and integrate corrective measures in the face of challenges. Eventually, leaders’ success is reflected in the institutionalization of changes that become a normal organizational activity (Hickman, 2010).

The leaders’ knowledge, skills, and behaviors may reflect one or more leadership types. Leadership in organizational change is a collective process and the use of a specific type of
leadership depends on the type of change that is required (Beach, 2006; Hickman, 2010). Leaders implement change by drawing from multiple theories and perspectives to lead change. Specific types of leadership and practices are required to implement a specific type of change. Hence, the study of leadership is relevant to understand some of the factors within organizations that guide change (Hickman, 2010).

Managers’ attitudes towards the innovation, personality traits, and demographics. Through reviewing the literature, Brophey, Baregheh, & Hemsworth, (2013) indicate that in the 1970s, managers used to take decisions related to innovations according to their experience and a set of rules to avoid risks. In 2008, such decision-making process was rational and based on quantitative data to evaluate the expected utility of innovations. Also, two views for decision-making emerged: 1) the naturalistic decision making paradigm, that focuses on the evaluation of patterns in contexts that involve uncertainty of choices; and 2) the organizational decision making paradigm, that states that decisions are often ambiguous and repetitive and made in conflictive contexts. The two latter paradigms involve the experimentation of possibilities instead of following a set of rules.

Brophey et al., (2013) conducted a survey research to know if the managers’ perceptions of the risks and success metrics of the innovations vary during the innovation process. They found that the innovation process is dynamic, ambiguous, and often uncontrollable. In order to assist managers in the decision-making process, recommendations must be situational because the innovation process is context-specific.
Musteen, Barker, and Baeten (2010) reviewed the available literature on the upper echelon perspective that states that top managers’ attitudes reflect and influence the organization’s vision, culture, structure, and processes. They presented other researchers’ findings regarding the influence of top managers’ attitudes and personality traits on the initiation and adoption of innovations in uncertain and ambiguous situations. By reviewing the literature, Musteen et al. (2010) supported the statement that through their leadership (and attitudes toward change), top managers influence organizational strategies and therefore impact the adoption of innovations within organizations.

Musteen et al. (2010) conducted a study to explore the association between CEOs attitudes toward change and the level of emphasis on innovation that a sample of non-profit organizations include in their business strategies. They found that the more positive the CEOs attitudes toward change (i.e. tolerance to risk and uncertainty), the more likely it was that the organizations adopted innovative business strategies (instead of focusing on enhancing existing competitive mechanisms).

Additionally, Musteen et al. (2010) explored the moderating effect of CEOs tenure—a measure of the CEOs power— on the relationship between CEOs attitudes towards change and the organizations’ business strategies. They found that CEO tenure affects the association between CEO attitudes toward change and organization business strategies emphasis on innovation. Therefore, Musteen et al. (2010) argued that as CEOs stay in the organization they acquire knowledge, skills and experience specific to the organization. Such CEOs experiences make them more capable of influencing others (e.g. through their communication skills). As time
passes, CEOs become more knowledgeable within organizations and their capacity to influence the organization’s strategies increases.

Musteen at al. (2010) suggested the use of more comprehensive measures of CEOs cognitive characteristics such as the “big five personality dimensions (BFP)” as individual-level factors affecting organizational approach to innovation. The BFP traits are a more general measure of the CEOs tendencies to act in a certain manner, and as such may be more grounded in the mindset of CEOs creating more predictive behaviors.

Middle managers. Evidence on effectiveness of innovations is not sufficient to successfully implementing them; organizational changes are required (Kyratsis et al., 2012). Innovation implementation is a process in which the organization’s teams become skillful in use of an innovation. Birken, Lee, and Weiner (2012) present a theory of middle managers; they state that middle managers promote innovations’ implementation by bridging informational gaps, identifying priorities to innovate, making information on innovations relevant to employees, and giving them tools and incentives to implement the innovations. The organization’s policies, practices, implementation climate (incentives), and top managers influence the middle managers willingness to commit to innovations implementation. Top managers have to ensure that middle managers have access to resources to translate information into tasks (Birken, Lee, & Weiner, 2012).

Staff attitudes towards innovation and staff self-efficacy to implementation. Weiner (2009) conceptually defined and developed a theory on the organizational readiness. The
organizational readiness for change can be studied in the pre-implementation stage in the innovations’ adoption process. High organizational readiness for change increases the chances of change implementation and success. It can be measured as both the members’ psychological state to commit to the implementation of innovations, and their belief on the organization’s collective capacity to do so (i.e. structure and resources).

There are three conditions that promote the organizational readiness for change: 1) members value change, 2) members perceive that they are capable of implementing the needed changes according to the task demand and availability of resources, 3) organizational characteristics such as a culture that supports innovations, a flexible governance structure, and positive experiences with change. The recommendation is that managers implement strategies that increase the organizational readiness for change. In other words, managers can promote the organizational readiness for change by increasing the staffs’ positive perceptions about the innovation and by increasing their (adopters) self-efficacy about their implementation capabilities (i.e. learning strategies adapted to the local context) (Weiner, 2009).

Staff attitudes towards managerial strategies to select innovations. The decisions about innovating depends on the organization’s acceptance of the strategy that managers use to select and prioritize innovations. Therefore, the procedures to select and prioritize innovations represent an important element in the adoption of innovations. Such procedures would avoid decision-making problems related to the adoption of innovations such as the approval of initiatives that were not evaluated in terms of costs or impact (arbitrary selection). Managers need to manage the conflict of selecting the appropriate strategies for the selection and
prioritization of innovations in an environment that accept strategies without (sometimes) considering its appropriateness. This determines the outcome of the innovation process (Gutierrez, Sandstrom, Janhager, and Ritzen, 2008).

From an explorative study, Gutierrez et al. (2008) found that there are four strategies for the selection of innovations which are complimentary: 1) static and dynamic approach to manage innovations, 2) rational or analytical and non-rational procedures for decision-making, 3) formal and informal communication of decision-making, and 4) hierarchical and non-hierarchical participation of authorities. The acceptance of the strategies is embedded in social factors beyond organizations.

Characteristics of the innovation. Hargadon and Douglas (2001) wrote an informational review about the role of innovations’ design as a determinant for innovations’ acceptance in the established institutional environment. They stated that the diffusion of innovations depends on the innovations’ ability to outperform the functionality and economic advantage of traditional systems. Hence, they recommend that one focus on the innovations’ characteristics such as value and use, that have to emulate the existing public’s understandings of the structures and patterns of actions. The authors suggest that the innovation’s design is the mediator between the innovation’s adoption and impact on social structures. “People make sense of the new only in terms of the old (Hargadon & Douglas, 2001, p. 479).”

Adams, Tranfield, and Denyer (2011) conducted a qualitative study to develop a model about the innovation’s attributes that innovators in health care consider during adoption and
diffusion processes. They found that the following innovation’s attributes should be considered during the innovation’s adoption process: novelty or degree of change; departure from existing practices, if departure from existing practices occurred in a disruptive manner; risks involved; creativity; conceptual or adoption timing uncertainty; scope; complexity in use; adaptability; relative advantage, if it benefits the profile of the team or larger institution; and observability/visibility of the innovation’s results. The adopters’ attitudes about these innovation’s characteristics affect their decisions to adopt the innovation.

In a study of innovations in health care using conjoint analysis, health care providers rated the utility or value of selected innovations’ attributes. They elicited their prioritization scheme (importance) of potential innovations. The most influential innovations’ attributes were “impact on patient care” and “quality of supporting evidence.” The utility and value of innovations helped them answer the question about which innovations to implement. However, there are other determinants for implementation/adoPTION of innovations’ but preferences of adopters and innovations’ attributes are important sources of influence (Farley, Thompson, Hanbury, & Chambers, 2013).

According to Porzsolt, Ghosh, and Kaplan (2009), proposed a qualitative assessment of innovations to expose decisive factors in the innovation’s adoption process. Agencies’ decisions to support an innovation are potentially influenced by a “positive perspective” and by “uncertainty of data” about the risks and benefits associated with the innovation. When there is a need, a desire, and an interest for a solution that the innovation is offering, the agencies will have a positive perspective about the innovation. Positive perspective is the strongest predictor for agencies support to innovations. Additionally, when there is low uncertainty about the
innovation’s impact and sufficient validity of data, agencies will be willing to support the innovation. The innovations are sustained by generating risk-sharing strategies between insurers and funders (Porzsolt et al., 2009).

The reviewed literature provided information on the factors influencing the adoption of innovations in organizations. However, most of the literature review addresses descriptive analyses on the process of adoption of innovations within organizations. Studies that specifically focus on the influence of multiple factors in the adoption of disruptive innovations in any industry are lacking. Since there is not any model available that integrates valid measures of the factors that influence the adoption of disruptive innovations in health care, a study to generate such model is needed.
CHAPTER 3: METHODS

Innovations in agencies have the potential to reduce the problems of inefficiency in service delivery and limited access (Omachonu & Einspruch, 2010; Barnett et al., 2011; Cutler, 2010). However, little is known about the process of innovation at the agency-level in the health care industry (Fleuren et al., 2004; Kyratsis et al., 2012). Hence, the purpose of the present research endeavor was to study the adoption of innovations in local health care agencies. The innovations include sustaining and disruptive, which are the type of innovations examined by the Disruptive Innovation Theory (Christensen et al., 2009).

Specifically, this study focused on elucidating the process of adoption of disruptive innovations in local health care agencies that deliver primary care. The proposed research question is the following: how does the local leadership in health care agencies describe the process of adoption of disruptive innovations? The research question is broad enough to allow the investigation of the factors in the external and internal environment that influence the agencies’ decisions to adopt innovations. Also, the characteristics of the innovation that facilitate its adoption by health care agencies were explored. Additionally, the adoption of innovations involves a decision-making process that was studied by considering the human interactions (i.e. some adversarial and some cooperative) that happen within and outside the health care agency. Moreover, the impact of the adoption of disruptive innovations on the agencies’ performance and access to services was explored.

In the following paragraphs, the sections for the research approach, design, and procedures for data collection and analysis are presented. Such sections are justified according to
the present research focus and the available literature. Additionally, a section on human research participant protections is included.

3.1. Research approach and design

This research effort focused on understanding the process of adoption of disruptive innovations in local health care agencies. The aim of this research was constructing a theory, grounded in the participants’ knowledge and perspectives, that can be useful for the promotion of disruptive innovations. The process of adoption of innovations at the agency-level in the health care industry is complex (i.e. multi-faceted and non-standardized) and specific to the type of innovation and context (Fleuren et al., 2004; Kyratsis et al., 2012). Additionally, due to the lack of studies about this topic, there is no theory or framework with enough predictive capacity to understand and thus promote the adoption of disruptive innovations in local health care agencies (Buschow, Nolle, & Schneider, 2014).

Therefore, policy makers, health care leaders, investors, innovation assistance organizations, health advocacy groups, and patients are not well informed about the following issues in the local health market: trends on innovations at the agency-level (and thus, lack information on the fate of health care agencies), the advantages of disruptive innovations, and the enablers and contexts to adopt disruptive innovations. Without such knowledge and information, there is no way to generate a model to guide the actions of stakeholders in the local healthcare field to enhance the opportunity to reform primary care delivery. Reforming the delivery of services through the adoption of disruptive innovations would improve the performance and
survival of health care agencies, and access to health care services in the health market (Christensen et al., 2009).

The process of adoption of disruptive innovations at the agency-level was explored by taking into account the external and internal conditions and the perspectives of decision-makers involved in such process (Creswell, 2007). The perspectives of the local health care leadership were gathered in their specific contexts, which included environmental and organizational influences that determine the decisions and experiences of healthcare leaders regarding the adoption of innovations. This allowed the researcher to better understand the information that was gathered from participants. Participants in selected health care agencies were encouraged to attach their own meanings to the innovation process.

Consequently, this research endeavor followed a qualitative research method in which the characteristics of every participating agency and its external environment (i.e. a set of conditions or factors) is the complex context. In such context, interactions among individuals affecting the process of adoption of disruptive innovations occur. The description of the environmental context of local health care agencies and the perspectives of decision-makers about the process of adoption of disruptive innovations were addressed, because both are crucial in the interpretive strategy applied in qualitative research (Creswell, 2007).

The approach to inquiry that was used in this qualitative research was constructivist grounded theory. In a constructivist grounded theory study, the researcher emphasizes that the reality is constructed in specific contexts and environments, and that each individual can have
his/her own views of that reality. In other words, the reality is not waiting to be discovered but constructed (relativist ontology) (Mills, Bonner, & Francis, 2006). Then, the reality can be understood and known by asserting that the researcher, in conjunction with participants, interpret and give meanings to events (subjectivist epistemology) (Mills et al., 2006).

Grounded theory is helpful not only to describe events but also to generate a process model about the interactions among individuals in specific contexts. Such process model can emerge from the perspectives of participating agents (i.e. individuals involved in the process); the process model is grounded in the data (Breckenridge & Jones, 2009; Creswell, 2007). This research focused on understanding the process of adoption of disruptive innovations in local health care agencies. Hence, grounded theory suited the present research question; the process of adoption of disruptive innovations in local health care agencies providing primary care had not been explored. A complete rationale for a focus on studying health care agencies delivering primary care was provided in detail in chapter 1 section 3.2.

Grounded theory was used to explain how the local health care leaders experience the adoption of disruptive innovations. This research design allowed the study of the following: the conditions that influence the adoption process; the steps, pathways, and interactions among participants involved in the process; the conditions that influence the interaction and behaviors of participants during the innovation process; and the impact of the interaction among participants, during the process, on selected outcomes (Mills et al., 2006).
Validation strategies

The quality of this study was warranted by the careful consideration of scientific literature that supported the whole research process. For example, the research question emerged from a real national need to support the restructuring of the U.S. health care system to improve quality, efficiency, and access to services. The use of theories and the comprehensive review of the literature in various disciplines also supported the quality of this research study. For example, the instrument to collect data included questions that were framed by an integrative framework generated through robust literature searches and reviews (see Table 1 and section 2.3.4).

Recommendations to conduct qualitative research were followed and therefore this study was focused on a single research question: How does the local leadership in health care agencies describe the process of adoption of disruptive innovations? This central research question was intended to provide descriptive information about the process of adoption of disruptive innovations in local health care agencies. Grounded theory research is helpful to study the following elements in any process: the determinants, pathways, and interactions among participants in the process—of adoption of disruptive innovations in local health care agencies. All elements, interactions, and outcomes present in the process can be schematized, and a grounded theory research allowed the generation of such a model/scheme.

Based on an extensive literature review and on the integration of three theories, a preconception of the determinants involved in decisions about the adoption of innovations were established. Also, the multiple dimensions and complexity of the context and process of adoption
of innovations in agencies were taken into consideration. However, these preconceived context and array of determinants only represented the informed and pertinent guide to conduct the interviews by considering a comprehensive account of the process of innovating (Mills et al., 2006). An important factor maintained during data collection of this study was openness to additional determinants, mechanisms, and participants’ interactions related to the adoption of innovations in local health care agencies.

In qualitative research, ensuring the validity of findings means to confirm, through certain strategies, the accuracy and credibility of findings (Shenton, 2004). The following paragraphs describe strategies that were used to ensure validity of findings.

Data was triangulated (Golafshani, 2003; Shenton, 2004). The theory was presented to a sample of participants in a follow-up meeting; they verified the theory and commented about the data presented. The analyzed data and resulting theory reflect the participants’ views, knowledge, and practices regarding the process of adoption of disruptive innovations in local health care agencies.

Additionally, sampling and data collection and analysis were part of the recognized procedures of grounded theory research (Breckenridge & Jones, 2009; Charmaz, 2006). This ensured that the data gathered was presented clearly and efficiently to reflect the complexities involved in the process of adoption of disruptive innovations at the agency-level.
3.2. Setting, population, and sample.

The study was conducted in the city of El Paso located at the west side of Texas. There are an estimated 674,433 people living in the city of El Paso. The city experienced 3.9% of population growth from 2010 to 2013. A large majority of the population in El Paso are Hispanics, 79.1%. This border city includes 24.3% of foreign natives. A high percentage of individuals (71.2%) speak languages other than English at home (U.S. Census Bureau, 2014).

The city of El Paso performs lower than Texas with regard to educational achievement and economic values. In El Paso, 76.4% of people 25 years or older have a high school degree or higher educational level as compared with 81.2% of people in the state of Texas. The population in El Paso also has lower per capita income than that of the state of Texas, that is, $19,669 versus $26,019 (state average). Also, 21.5% of the population lives below the poverty level as compared with 17.6% living below the poverty level in the state of Texas (U.S. Census Bureau, 2014).

El Paso county data indicate that 60.6% of adults and 89.9% of children are insured, as compared to the national county averages of 78.9% and 92.6%, respectively (Healthy Paso del Norte, 2014). Health insurance is related to the financial barrier to access health care services. The lack of health insurance limits access to health care services. Moreover, during 2013, 23.3% of the population in El Paso County were unable to afford to see a doctor, and thus could not receive health care when they needed it. Also in 2013, a greater proportion of Hispanics than whites were unable to afford to see a doctor, 26.5% versus 12.6%, respectively (Healthy Paso del Norte, 2014).
Hence, there are relatively high proportions of individuals in El Paso whose health insurance, financial and cultural status create barriers to health care access. For example, the high proportion of Hispanics and the presence of foreign born natives in El Paso, indicate that health care providers need to be culturally competent to promote access to health care. Also, this community has a relatively low socio economic status which results in lack of health insurance and inability to afford health care. Because there are proportionally more Hispanics facing financial barriers to access health care than other races, Hispanics are more likely to bear the highest burden of diseases and unmet health needs (City of El Paso Department of Public Health, 2013).

In summary, the local context is characterized by a low SES. Not surprisingly, 39.4% of adults and 10.1% of children do not have health care insurance. As mentioned before, not having health care insurance is a relevant financial barrier for health care access. Consequently, almost a quarter of the local population, especially Hispanics, reported not being able to see a doctor when they needed it. Hence, the city of El Paso is in need of improving access to health care services.

In addition, in El Paso County, there are 63 areas that are medically underserved according to the criteria provided by the Health Resources and Services Administration (HRSA). In those 63 census tracts, there is a shortage of primary health care providers (PCPs), a high rate of infant mortality, a high proportion of people living in poverty, and a high proportion of people that are 65 or over (El Paso Children’s Hospital, 2014). Hence, decision makers in Texas have already argued that innovative delivery models in primary care are needed to improve healthcare
access in these critical underserved areas. They suggest that there are low-cost delivery models that employ PAs and NPs to deliver primary care, and that can potentially alleviate the shortage of PCPs in medically underserved areas (THCPC, 2008).

As mentioned in Chapter 1, the promotion of the expansion of primary care through the adoption of innovations is a priority; it would improve health outcomes in the population, reduce the fragmentation of health care services, and thus lower the costs. This is because primary care providers can enhance the continuity of health care (Bodenheimer, 2005d).

Additionally, innovations in health care agencies delivering primary care can positively impact the quality and costs in the overall primary care field through competition. The presence of efficient innovators in the healthcare market, influence change in traditional primary health care agencies. Traditional health care agencies start adding value to their services by extending their availability to the public (Pauly, 2011).

Hence, this research focused on the study of innovations in local health care agencies that deliver primary care. Primary care providers must be the first point of contact for accessing the health care system. This would facilitate the timely prevention, diagnosis, and management of health conditions and the coordination of care. Having regular access to a primary care provider potentially avoid the excessive utilization of hospitals’ emergency rooms and the progression of diseases.
This study focused on disruptive innovations in health care agencies delivering primary care because by understanding such innovations, stakeholders can encourage that both existing and new agencies improve and expand primary care in the region. Ensuring an adequate array of efficient and affordable primary care agencies (and providers) in general, can lower the overall costs of care and improve the quality of care (Bodenheimer, 2005d; Starfield, Leiyu, & Macinko, 2005).

The focus on studying disruptive innovations in care agencies that deliver primary care also provided a methodological advantage; the sample was relatively homogeneous and facilitated data analysis. For example, the researcher only explored the specific elements in the environment of primary care agencies (i.e. regulations) that may impact the adoption of innovations. Therefore, the complexities of the external and internal influences in secondary and tertiary health care agencies were ruled out in this research endeavor.

Data available from the Texas Workforce Commission provides employers’ contact information. This information is available from www.texasindustryprofile.com. The potential participants of this study included C.E.Os, presidents, vice-presidents, or any other member in a high-level position from local health care agencies. The method for searching the contact information of health care agencies located in El Paso involved the use of both NAICS codes and city name filters. The North American Industry Classification System (NAICS) is the national standard used to categorize and analyze information about businesses.
The NAICS codes 6211—offices of doctors, 6214—outpatient care centers, and 6221—general medical and surgical hospitals were searched in the database. For the reasons already stated, only health care agencies offering a considerable amount of primary care were included in the study. Hence, outpatient mental health and substance abuse centers, kidney dialysis centers, and blood and organ banks were excluded. Usually, such health centers are not the primary contact for patients, but they are referred to the centers after consultation with a primary care provider. Additionally, from the cluster of hospitals, psychiatric and substance abuse hospitals and specialty hospitals were not considered in the present research study because they provide secondary care.

In order to maximize the chances of accessing a significant number of potentially disruptive health care agencies, no restrictions were set to the searching criteria for agency’s employee and budget size. After filtering the selected NAICS categories for the city of El Paso, 502 agencies were retrieved. There was one consideration to have in mind regarding the utility of the NAICS database. The completeness and accuracy of the information presented in the database could not be determined, and it was not optimal. Hence, in order to maximize the chances of having access to a comprehensive amount of local health care agencies (potentially disruptive health care agencies), web searches were also conducted. Potentially disruptive health care agencies not shown in the database, especially new agencies, were found through the Internet.

Potentially disruptive health care agencies from the NAICS database and web searches were identified. Table 2 shows the criteria for selecting potentially disruptive health care agencies. According to the table, the general focus was on healthcare agencies delivering
primary care. “Primary care is the first level of contact in a healthcare system for individuals and is characterized by longitudinality, comprehensiveness, and coordination.” (Shi, 2012, p. 15).

Primary care includes the prevention of diseases, the promotion of health, and the diagnosis and treatment of common illnesses in individuals, families, and communities (Shi, 2012). In this case, the agencies that deliver primary care included offices of doctors, outpatient health centers, and general medical hospitals. The agencies that are potentially disrupting such models of care were identified.

Table 2 shows that retail walk-in clinics represent models of care that are disrupting and are equivalent to the services provided at the Doctor’s office. Additionally, the work previously done in general medical hospitals (i.e. emergency rooms) can now be transferred to disruptive agencies such as urgent care units and outpatient care centers. Hence, potential participating agencies include potentially disruptive health care agencies.

Table 2. Selection criteria

<table>
<thead>
<tr>
<th>Agencies delivering primary care</th>
<th>Disruptive agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctor’s office</td>
<td>Retail clinic (walk-in)</td>
</tr>
<tr>
<td>General medical hospital</td>
<td>Emergency/urgent care unit</td>
</tr>
<tr>
<td></td>
<td>Outpatient care center</td>
</tr>
</tbody>
</table>

*Adapted from Christensen, 2009

An excel file with the contact information of potentially disruptive health care agencies was created. The list was revised to ensure that the information of potential participants was complete, up to date, and not repeated. The following data was included in the excel spreadsheet: health care agency name, primary contact person name, mail address, and telephone number. After excluding both the agencies that were repeated and those that did not focus on providing primary care, a final list of 110 potential participants was generated.
The present study involved the administration of semi-structured in-depth interviews, which focused on specific themes but were flexible enough to be discussed as a casual conversation with potential participants. The sample was a subsample of the local health care agencies delivering primary care, which are approximately 110 health care agencies. The subsample included potentially disruptive health care agencies in El Paso, Texas. Disruptive health care agencies’ representatives were invited to participate in the study by mail and in person, and were also contacted and recruited in person.

3.3. Sampling procedures

One important step prior to conducting any study is the sample size determination. For a grounded theory study, the interest was to generate a theory to help in understanding the process of adoption of disruptive innovations in local health care agencies. The literature on the innovation and implementation arenas, specifically grounded theory studies, indicated that between 10 (Shaw, Jennings, Poost-Foroosh, Hodgins, & Kuchar, 2013; Denton, & Michie, 2006) and 20 participants (Apramian, Watling, Lingard, & Cristancho, 2015; Scogin, 2016; Cottrell & McKenzie, 2005; Creswell, 2007) are needed to reach data saturation. Data saturation is reached when the researcher stops finding new information from participants; hence data starts to appear redundant (Breckenridge & Jones, 2009). Consequently, for this study a sample of at least 15 local health care leaders for each category of agencies delivering primary care was estimated. These health care categories were categorized as follows: 1) agencies that are disrupting the offices of health care practitioners, and 2) agencies that are disrupting general medical hospitals, including the emergency room. Hence, the sample size for this study was 30.
This means that 30 in-depth interviews with participating representatives in health care agencies were conducted.

The total population or total number of health care agencies delivering primary care in El Paso, Texas is approximately 502. Potentially disruptive health care agencies were identified from those agencies in the list or database. All of the potentially disruptive agencies were initially contacted by mail. In the mail packet, an invitation to participate in the present study (Appendix A) was delivered to a total of 110 potential participants.

Theoretical sampling was applied in this study during the data collection process. Theoretical sampling means that the chosen sampling and data collection and analysis strategies occur simultaneously and have the purpose of facilitating theory generation (Breckenridge & Jones, 2009). The sampling strategies emerged and evolved from the data as the concepts, categories, and themes were created and refined during the application of the research methods (Breckenridge & Jones, 2009). See Table 3 for a schematic representation of the study’s sampling procedures.
Table 3. Sampling procedures

<table>
<thead>
<tr>
<th>Item/Step</th>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Selective sampling</td>
<td>Theoretical sampling</td>
<td>Theoretical sampling</td>
</tr>
<tr>
<td>Purpose</td>
<td>Ensure diversity</td>
<td>Ensure diversity and saturate emerging categories</td>
<td>Test emergent theory</td>
</tr>
<tr>
<td>Source</td>
<td>New participants</td>
<td>New and already interviewed participants</td>
<td>New and already interviewed participants</td>
</tr>
<tr>
<td>No. of participants</td>
<td>7 per group*</td>
<td>6 per group*†</td>
<td>2 per group*</td>
</tr>
<tr>
<td></td>
<td>Data collection &amp; analysis</td>
<td>Data collection &amp; analysis</td>
<td>Data collection &amp; analysis</td>
</tr>
</tbody>
</table>

*Groups: 1) disruptive agencies of doctor’s offices, and 2) disruptive agencies of general medical hospitals
†This number may increase, depending on the researcher’s needs for more data until reaching data saturation
‡Interview guide items will be modified
§Interview guide items will be modified

According to this method for selection of participants, the first step was to purposefully select seven participants per group of disruptive agencies. In this step, it was important to ensure diversity of health care agencies’ characteristics and contexts. This way of selecting the participating agencies is also called “selective sampling.” During the data collection process from such selective sample of participants, data was simultaneously analyzed through a constant comparative method (see data analysis section). As patterns in the information emerged in the form of concepts and categories, through an iterative process of data collection and analysis, the second step for sample selection was followed. After this first step in the process of selection of
participants, the items in the interview guide were modified (Draucker, Martsolf, Ross, & Rusk, 2007).

In the second step, six participants per group were purposefully selected from two types of possible sources: 1) participants that were already interviewed, and/or 2) new participants. The strategies for the selection of participants were the following: select the participants that intensely reflect the central event; select participants whose characteristics are either typical or extreme; and select participants that exhibit the event coded into the emerging concepts or categories. The purpose of this sampling step, called “theoretical sampling”, is to saturate the categories that emerged from the first sampling step (Draucker et al., 2007). Data saturation in this sampling step was reached after six interviews (per group) (i.e. this was the limit point at which the theory could not be developed anymore).

The third and last sampling step was to select a final set of two participants per group. This step is also called “theoretical sampling.” The purpose of selecting participants in a precise manner was to test the emerging theory. In order to do so, a group of participants was selected to verify or refine the already saturated categories (Draucker et al., 2007).

3.4. Instrumentation

After identifying potentially disruptive health care agencies, the next step was to conduct the actual methodology of grounded theory. The central research question is the following: how does the local leadership in health care agencies describe the process of adoption of disruptive innovations? In order to answer such question, semi-structured interviews with participants were conducted. The questionnaire guide is shown in Appendix B. Such questionnaire guide was
developed according to the integrated framework for the study of the adoption of disruptive innovations in health care (see Table 1). A total of 30 interviews were conducted. Despite the preconceptions of the researcher regarding the process of adoption of innovations in health care, the researcher remained open to refine the items in the questionnaire; the instrument evolved according to the theory development process (Draucker et al., 2007).

3.5. Data collection and analysis

From a list of 502 health care agencies in El Paso, TX (including the NAICS 6211, 6214, and 6221 codes, and web searches), potentially disruptive health care agencies delivering primary care were selected. Repeated health care agencies were eliminated from the list. Also, health care agencies not providing primary care services were excluded. Hence, from the initial 502, only 110 potentially disruptive health care agencies were listed in an excel file. Mail packets for the recruitment of participants were created, and sent to potential participants via the United States Postal Service (USPS). The mail packets contained the following items: a) an invitation letter to participate in the study (see appendix A), b) a card in which two options were given to potential participants about participation in the study, and c) a pre-paid reply envelope. The invitation letter was directed to potential participants who included the owners, C.E.Os, Presidents, or other high-rank officers in the local health care agencies. Through the information contained in the invitation letter, participants were informed of future contacts by telephone or in person. Also, in the invitation letter, the participants were informed of the possibility of requiring their participation in more than one interview (up to three). After three weeks of sending the mail packets to potential participants, 12% packets were returned to the sender (i.e. agency not found). The response rate was 4%, and half of the respondents declined participation in the research.
Hence, it was unknown what happened with the more than 80% of packages sent to potential participants.

Given the low response rate, all the health care agencies were contacted by phone to find out if a packet had been received in the mail, because no answer were obtained after three weeks of sending the packets by mail. In most of the health care agencies, the person answering the telephone indicated that they had not seen the mail packet, and that it may have not reached their office. They also mentioned that it would be very difficult for anyone to reach a high-rank officer by sending non-personalized mails to the agency’s main location. They said that high-rank officers work on separate locations, and/or do not visit the location often.

Based on the lack of response from the initial attempt to reach out to high-rank officers, it was determined that the best way to proceed with the recruitment of potential participants was to directly visit the health care agencies at their main location and personalize another set of ~110 mail packets (a total of 110 mail packets were prepared). Each of the health care agencies in the list were visited and personalized invitation letters were delivered in person. When delivered the packet in person to a receptionist at the front desk, it was requested that this were delivered to the high-rank officer. To have a better control of responses from potential participants, a P.O Box service was secured. After two weeks of sending personalized mail packets, a low response rate was noted one again. Due to this low response it was determined to follow-up directly with the high-rank officers by visiting them in person at their location. An average of three visits to health care agencies were conducted. The outcome from these visits was agreement on a date and time to conduct the interview with high rank officers (participants). Before interviewing participants,
an informed consent form was handed to potential participants. The consent form shown in Appendix C, included information about the confidential and voluntary nature of the research process. Each interview lasted from 30 to 60 minutes; the guide for the interview is presented in Appendix B. From August to October, 2017 a total of 30 face-to-face interviews were scheduled and conducted. The interviews were audio recorded, and then transcribed by the researcher. The data was analyzed by using a free software—the QDA miner lite.

In grounded theory, data collection and analysis happen simultaneously since the methodology of such approach to research is recursive. It involves the application of consecutive and repetitive steps of interviewing, discovering, and sampling (Draucker et al., 2007). Hence, according to the steps shown in Table 4, the following description for data collection and analysis mirror the explanation for sampling participants.

Table 4. Procedures for data analysis

<table>
<thead>
<tr>
<th>Item/Step</th>
<th>Step 1: initial coding</th>
<th>Step 2: focused coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Initial coding</td>
<td>Axial coding</td>
</tr>
<tr>
<td>Purpose</td>
<td>Elicit detailed responses</td>
<td>Saturate central and emergent categories to develop focused codes, and generate relationships among concepts</td>
</tr>
<tr>
<td>Type and no. of participants</td>
<td>New: 7 per group</td>
<td>New and already interviewed: 6 per group</td>
</tr>
</tbody>
</table>

Data analysis in grounded theory has the purpose of generating a theory. In order to do so, the researcher engages in a systematic analysis of data that involves the following two steps:
1) initial coding, and 2) focused coding—axial and theoretical (Charmaz, 2006; Draucker et al., 2007).

The data collected from interviewing an initial random sample of seven participants per group was analyzed through initial coding. The purpose of this initial data analysis was to elicit from participants detailed responses on the research topic (Charmaz, 2006). During initial coding, the researcher analyzed the data to find the explicit and implicit meaning of a central event/process, its context, and its relationship with other incidents. In this case, the central event is the process of adoption of disruptive innovations. The meaning of events emerged and was extracted from the data in a line-by-line fashion (unit of analysis). Such meaning was captured through the use of tags in the form of gerund verbs (i.e. events) (Charmaz, 2006).

Initial coding requires that the researcher remains open while closely reflecting and learning about the socially constructed event of adoption of innovations contained in the data. Hence, the researcher was conscious about her own and the participants’ viewpoints regarding the topic under scrutiny. That was accomplished through the systematic application of both memo-writing techniques and the constant comparative method (both processes explained below). This allowed the researcher to interpret the data by focusing on preserving the experiences only from the participants’ perspectives or data. However, the researcher’s viewpoints may fit segments of data. Such fit happened consciously, since the researcher was at all times aware of her own preconceptions about the adoption of innovations process (Charmaz, 2006).
The whole process of data analysis involved the application of the constant comparative method to stimulate the discovery of ideas/meanings that may bring new light to previous understandings of the process of adoption of innovations. The constant comparative method comprises comparing “data with data and then data with codes” within and among interviews to see similarities and differences (Charmaz, 2006). For example, the researcher was comparing data within each generated code among participants. Then the researcher generated categories by comparing codes and analyzing new data. Then the researcher integrated categories by comparing them and finding their relationships. Also, the researcher compared categories with concepts and started crafting a theory. Finally, the researcher compared the emergent theory with existing theories and delimited its scope.

Additionally, memo-writing took place during data analysis to generate focused codes and concepts (categories). Memo-writing is a useful tool to chronologically record the researcher’s thoughts and insights about the data. With the application of memo-writing techniques, the researcher accomplished the following: critically defined the data, codes, categories, and themes; further questioned and developed the data (i.e. finding gaps in the data and strengthening emerging categories); and discovered connections in the data (Charmaz, 2006).

The codes that emerged from initial coding were preliminary and raised questions about their complete definition, their relationships with other codes, and their relevance. Such questions represented data gaps that were explored by locating and gathering data from individuals that were already interviewed or from new participants (Charmaz, 2006). Hence,
another set of six participants per group, purposefully selected, were interviewed to explore in detail the central and emerging categories and saturating them.

Initial coding provides direction to generate concepts that explain larger amounts of data. Therefore, after initial coding the researcher engaged in focused coding which includes axial and theoretical coding. In general, focused coding involved the selection of the earlier codes that seemed the most salient and insightful and synthesized the data (Charmaz, 2006). The researcher generated concepts that were created from the analysis of earlier codes. During focused coding, the researcher interviewed again some of the former participants to get the explicit meaning of ambiguous statements. Then, the researcher compared data with data, codes with data, developed focused codes, and finally compared data with the focused codes.

Axial coding was used to organize large amounts of data and selected codes by generating relationships between a central concept and sub-concepts (Charmaz, 2006). The researcher can start drawing a scheme that shows how the concepts are linked. The scheme can be generated by identifying the conditions, interactions, and consequences related to the phenomenon under scrutiny.

Theoretical coding started once the researcher had an analytical guide (resulting from axial coding) to describe the phenomenon (Charmaz, 2006). Then, two extra participants were interviewed to test the central issue and its relation with the other concepts. The researcher was able to craft a theory through the generation of hypotheses or propositions (Charmaz, 2006).
In summary, after initial coding, the emerging categories provided a preliminary set of explanations that needed further refinement and exploration. Memo-writing guided both the further selection of participants and the editing of the data collection instrument. Hence, by selecting participants that elicited robust definitions of the emerging categories (theoretical sampling), the properties of the categories were saturated. Finally, the concepts and relationships among concepts in the form of theoretical propositions were verified. This was possible by inquiring an extra set of participants about the adequacy of the emerging theory. A model or theory was generated.

3.6. Protection of human subjects

Human subjects’ involvement, characteristics, and selection criteria

This research study represents a health care market analysis. Data managed by organizations such as the American Hospital Association exist to conduct such type of study, but the specificity of the data, and the comprehensiveness of the available measures for health services research is not always optimal. Interdisciplinary studies utilizing system thinking, theories in various disciplines, and frameworks to guide instrumentation and data collection need their own instruments and unique data to solve questions in applied research.

This research is about the process of adoption of disruptive innovations in local health care agencies and their impact on selected measures. This information had to be directly gathered from the leadership in health care agencies, because only they can identify factors influencing their decision-making processes related to the adoption of disruptive innovations.
The research subject population included one representative per potentially disruptive health care agency. That representative included the owner, C.E.O, President, or other high-rank officer of health care agencies located in El Paso, Texas. There are approximately 502 local health agencies in El Paso providing primary care services. According to the North American Industry Classification System (NAICS), the health care agencies are within the following categories: offices of doctors, outpatient care centers, and hospitals.

The sampling frame of the potential participating agencies involved searching a public database from the Texas Workforce Commission web page, and placing NAICS codes and city name filters in the searching bar. Only categories in the health care industry were searched, and only agencies delivering primary care in El Paso were reviewed. No other criteria were used to select participants; all agencies sizes within all NAICS categories were in the list. However, only potentially disruptive ones were considered to participate in this study as indicated in the selection criteria shown in Table 1. Additionally, web searches and visits to the El Paso Chamber of Commerce occurred to identify and select potentially disruptive health care agencies delivering primary care.

Sources of data and recruitment

The methodology for this research involved the application of semi-structured in-depth interviews to 30 potentially disruptive health care agencies. All potentially disruptive local health care agencies delivering primary care were 110, all received a mail package containing the following materials: an invitation letter (see appendix A), a card with options to decide whether
to participate in the study or not, and a pre-paid reply envelope. The invitation letter included a
description of the research study and its potential impact, information about protections of
human subjects, and an explanation of the procedures of the research, which involved further
communication with the subject.

All pre-notified potentially disruptive health care agencies were contacted at least three
times in person to participate in semi-structured in-depth interviews. The participation of
individuals in a face-to-face interview required from 30 to 60 minutes of their time.

Potential risks and procedures to minimize them

The completion of the interviews did not involve any known major risks. However,
participants may have felt discomfort while answering unfamiliar questions or while being
audio-recorded. The discomfort was unlikely to happen and if it happened, it did not represent a
problem to the health of participants. In order to handle any type of discomfort during the
interviews, the researcher clearly stated the voluntary nature of the study since the beginning of
the interviews. The participants could skip questions and/or stop the interview process
completely at any time.

During the identification and recruitment of participants, consent was asked to
participants through signing a form. Detailed information about the voluntary and confidential
nature of the present study was presented twice to participants: 1) in an invitation letter that was
sent to participants via mail, and 2) in an informed consent form handed to participants before
being interviewed. Additionally, the PI contact information was presented in the invitation letter
as a means to answer the potential participants’ concerns regarding the study. Participants were
able to exclude themselves from the study or to ask the researcher to remove their information from the study’s population list.

With regards to confidentiality of participants and data, the list of potential participants and notes taken during the interview contain information that identify the participants and their agencies (i.e. contact information). However, all participants were assigned a code and all data entered in computer software was linked to codes but not to participants’ personal information. Then, all data collected from participants and the identification list that relates codes with participants’ personal information was maintained in a locked file cabinet and in a password protected file, accordingly. Only the PI accessed the cabinet and electronic files. Data from the interviews was reviewed by the PI. The researcher did not use any information that could identify participants during data analysis, presentations and publications of the study results.

Similarly, during the face-to-face interviews with participants, the researcher had access to both audible materials from a voice recorder and written notes derived from the analysis of the audio files. Such materials were maintained in a locked file cabinet until the transcription of such materials was completed; after the transcription of audible data the recordings were erased. Also, any electronic data decoded from the materials were password protected. Only the PI accessed the data related to this research.

Additionally, participants and their agencies were not identified on records, reports and/or publications that resulted from any step of the research study’s protocol implementation. The study is confidential.

Potential benefits of the proposed research to human subjects and others
There were no direct benefits to participants for participating in the interviews. However, their responses will be essential to increase the chances for the effective adoption and diffusion of disruptive innovations in the local health care industry.

A process model about the adoption of disruptive innovations was generated through this study. The process model considered the factors, and their relationships, that are involved in the adoption of disruptive innovations. Hence, it condensed the available information on the decision-making process in disruptive health care agencies about the adoption of innovations. The data from this study is presented as a scheme on how to implement disruptive innovations in local health care agencies. The model is expected to be shared with participating agencies.

The process model can increase the efficiency of the leaders’ decisions about the allocation of resources for the successful adoption of disruptive innovations. That would be achieved through reducing the risks of failure in the adoption of disruptive innovations, and avoiding the waste of resources directed to innovating.

In summary, by incorporating the data about disruptive innovations presented in the process model, the local health care agencies can increase their options to innovate and potentially improve their survival rates in the market. Additionally, entrepreneurs can use the model to follow a process of efficient introduction of disruptive innovations in health care agencies. The process model can facilitate the local efficient and sustained entrepreneurial activities in the face of an increased demand for health care services. Regulators in the market and the community can also use the process model to learn about the options to reform the health
care system and reduce its current inefficiencies (i.e. through addressing the barriers for adoption of disruptive innovations).
CHAPTER 4. RESULTS

This qualitative study followed a grounded theory design. The purpose of this study was to construct a theory about innovations; the theory was grounded on the perspectives of high rank officers representing health care agencies delivering primary care. Participants described how they innovate in their health care agencies. They also indicated the factors influencing change and the impact of change in the agency’s performance.

The analysis of 30 interviews involved the interpretation and arrangement of data as a theory of innovations in health care agencies delivering primary care. The theory can be understood as an *interdependent and adaptable network of influences, interactions, and technologies that produce organizational innovation*. Such network encompasses a dynamic process of innovation, and its antecedents and consequences. The main themes in the network are *pressure for change, the innovation process, and impact of change*. Pressure for change is the composite of external and internal forces to which the health care agency is susceptible, and hence destabilize the agency’s configuration. Certain agency’s components form the built-in feedback system that is believed to be activated, by such forces, prior the initiation of the innovation process. Therefore, the forces interact with and within the agency and generate feedback. The feedback in the agency is interpreted as a need to innovate in order to address the challenges related to maintaining and maximizing the agency’s performance.

Once feedback is provided to the agency the process of innovation begins. This is a decision-making process that health care agencies use to respond with change to the challenging conditions in their environments. The process consists of recognizing problems; generating,
validating, and implementing innovations; and evaluating their impact before maintaining and replicating change. Key interactions among actors occur in the process, and there are tactics and technologies that leaders employ to implement change. Eventually, the impact of innovating is measured and interpreted to keep regulating the agency’s configuration. Hence, the process of innovation in health care agencies is a process of constant learning.

The theory of adoption of disruptive innovations is presented in Figure 8. Detailed information of each theory’s component is included in this chapter. This chapter is organized into two sections. In the first section, the description of local health care agencies delivering primary care and the innovations they implement is reported. The second section describes the process of innovation including its antecedents and consequences is presented. Therefore, the first section provides the context (organizational) in which innovations are implemented. The second section provides a detailed description of the factors, strategies, and relationships among actors that take part in the innovation process in health care agencies.
Figure 2. The Theory: The process of innovation I local health care agencies
4.1. Health Care Agencies Delivering Primary Care

The process began by identifying a total of 110 potentially disruptive health care agencies located in El Paso, Texas. Only those agencies delivering primary care were invited to participate in the study. All agencies were visited and a total of 30 semi-structured in-depth interviews with high-rank officers working in the health care agencies were conducted.

The health care agencies address the challenges of growth and survival through the implementation of innovations. Most of the agencies approached in this research study were disruptive in nature. Therefore, the actions conducted to innovate relate to a unique goal. The agencies’ overall goal of innovating was to improve access to health care services in the community. Moreover, they innovate in three main ways: 1) restructuring health care delivery, 2) focusing on underserved markets, and 3) advancing processes.

4.2. Innovations in Local Health Care Agencies

The “type of innovation (change)” in health care agencies delivering primary care is the most distinguishable category from the data analysis. There are several frameworks to identify the types of changes that can be implemented in organizations (i.e. disruptive innovation theory, the model from the center for health market innovations, and the business model generation). In this study, the researcher identified the changes that local health care agencies perform to improve healthcare access. Specifically, such changes can be found in three organizational domains: delivery of health care, market focus, and processes. In the following paragraphs, each type of
change is defined. All types of changes are related to the potentially disruptive characteristic of selected health care agencies.

4.2.1. RESTRUCTURING HEALTHCARE DELIVERY.

Ideally, a multi-disciplinary group of health care and other providers organize and operate together under an integrated structure. The providers would deliver comprehensive health and social services to the community. The continuity and quality of care, and process efficiency would be promoted. Some of the officers in local health care agencies indicated that the organizational structure has evolved in ways that improve the connection between primary and other levels of care. For example, participants noted the medical home perspective several times as an approach to restructure healthcare to deliver comprehensive patient-centered services. The medical home characteristics are intended to improve the quality, access, and continuity of care (www.pcpcc.org). A manager in a primary care clinic specified that health care providers “really want to help the community, [they] want to make an impact on somebody's life.” She trains the staff on how to deliver patient-centered care. Similarly, an administrator of a multispecialty practice explained that in the private sector they are the only ones implementing a medical home: “we provide primary care and specialty care to patients… we see pediatrics, family medicine, internal medicine, and nephrology. We provide diagnostic centers; we have mammograms, sonographies and… we are expanding to CT and MRI.”

An analogous concept to the medical home perspective is the one-stop shop organizational structure, where patients can experience the convenient features usually found in
small focused clinics. A manager indicated that they coordinate multiple health services in single locations; she said the following about the structure of the primary care clinics:

“We offer radiology services, lab services, and pharmacies. At the west side we offer pediatrics, gastroenterology, geriatrics, family practice, we have a lot of things… we are trying to make the health care more accessible to the community… so you come, and we are establishing a [center] you come to this clinic and you are getting all your services here.”

An administrator in a clinic that is part of a company that owns nine local clinics described the development of the organizational structure towards a one-stop shop. The following was noted during the interview: “We don't outsource anything if we don't have to, each clinic has laboratory, x-rays, physical therapy, we have appointments and walk-ins; we can take care of everything. We have a full functional laboratory and radiology onsite.” Moreover, a manager in a stand-alone clinic that is part of four other clinics, suggested that the most distinguishable structural characteristic in the agency is that they offer comprehensive and accessible care. He noted that patients “[they] can come here as a one-stop shop. They can get their labs here, their scans, IV therapy, and injections. We do a lot of services here.”

4.2.2. Emphasizing a focus on an underserved market.

Disruptive innovations have the characteristic of serving the needs of people who have difficulties accessing the services offered in the mainstream market. The health care agencies in this study have the common feature of targeting an underserved market. They provide the
adequate resources for people to get the primary care services that they need. Resources include subsidies and other financial incentives for patients to effectively access health care services. Most of these clinics are located in areas where no previous services were available.

A manager in a primary care clinic explained that the actual clinic was created 20 years ago; it was the first clinic in the area (underserved area). As a feature of health care services, they offer a health payments program. In that program, patients pay a monthly fee and then every time they visit the clinic, they pay a small amount per visit and half-price of everything they need (i.e. x-rays, labs, and scans). Similarly, health care services in the public sector have the characteristic of taking care of the health first without emphasizing the financials or the patients’ ability to pay. A manager in a public hospital stated, “the health is more important, and we will discuss financials after the fact. The health is more important to us so, we do not and we cannot deny services to anybody.” Also, public non-profit clinics under a hospital umbrella manage an indigent plan for the patients living “under the 100% federal poverty line.” One of these clinics is a rural clinic where patients in need see a social worker that gives them vouchers to get their medications. In the private sector, free-standing primary care clinics located in underserved areas have their mission of taking care of the need of patients first. A manager in a clinic explained that “there may be people who do not have any access to medical care, so we are located in this underserved area and we help them to get medical tests even if they cannot afford to pay a doctor.”
4.2.3. Advancing processes.

Health care agencies implement innovations that result in improvements of processes. These changes are usually incremental for agencies that have long existed in the market because the innovations do not cause a remarkable change in the agency’s configuration. However, the implementation of incremental innovations in established health care agencies can prepare the way for additional agencies’ modifications that can enhance their potential for survival (i.e. actively responding to disruption). Additionally, existing, emerging and young health care agencies can implement potentially disruptive changes that are observable to the public. Selected health care agencies in the local market implement observable and potentially disruptive changes to improve their organizational processes. The advancement of agencies’ processes results in efficiency improvements and access to health care. In this study, it was found that leaders in health care agencies improve their processes by implementing information and communication technologies (ICT), and shifting tasks to focused health care facilities.

Regarding the implementation of technologies, a leader in a primary health care agency mentioned messaging encrypted services that facilitates connectivity among providers and improves efficiency in the admission process. Before the implementation of the text messaging service (through email), he indicated:

“the admission-discharge process… that time process and paper take a lot, so I [had] to wait for this person to finish and then to another person, and there was this delay that not everybody was aware… [with the new technology] everybody participate, so that process who used to take a lot longer length in time, we get it now. It also improves your patient
outcomes. It is faster processing, and truly in the health care field discharge planning starts on day one. We start discharge planning before the patient comes in.”

A computer system is another common technology that can be used to improve health care services. A referral system embedded in focused clinics can connect the primary care providers and other health care professionals working in different facilities. The technology is useful not only to provide continued care but also to gather feedback from patients about the adequacy of the clinic’s structure and processes. A head of a clinic noted the following about providing continuity of care:

“If you come in as a patient and you sign up on the iPad, [the system] asks you, do you have a PC doctor? If you say yes, it asks who it is. At the end, your notes have been submitted, emailed, or faxed to your PCP. If you do not have a PCP, it asks you, would you like to request one? Within 24 hours someone is going to contact you from the local hospitals systems, helping you find a PC doctor.”

The manager interviewed also mentioned “our computer system helps us track the door-to-door times, how many patients have been waiting, how many patients have walked out on us because of waiting, how many people left because we weren't able to treat them because of their symptoms, patient satisfaction scores, if they are happy with their services.” Moreover, a manager in a one-stop shop clinic described the usage of a medical computer system through which a network of providers communicates and shares patient information. During the interview it was explained, “with the click of a button [we] send medications or request feedback
on a certain patient.” Another manager at a public clinic described that their health care system is implementing a computer platform to improve employees’ communication. The manager interviewed described the problem in the internal processes and the potential solution that the technology will bring: “currently, we have such a hard time tracking, and who is doing what, we have a lot of programs but we still can’t get to communicate… [with the technology, we can improve] the ability to work together, and understand each other a little bit better, I think that the patients see the [current] disconnect, we need a lot of communication.”

A few primary health care agencies have included technologies in their clinics to deliver care to patients through a telephone or digital device (i.e. smartphone, tablet, and computers). These complementary processes enhance the clinics’ capacity to improve health care access to the community. In a clinic located in an underserved area, the manager described a telehealth program that they are implementing “we have an x-ray program where we can do an x-ray here and if a doctor wanted to see it at another clinic he could have access to it.” Furthermore, one clinic is implementing a call center, a technology that improves health care access: “so we are 24/7, if the patient calls [after clinic’s hours] we are able to speak to an on-call provider, if they have any questions we have that available.”

The most notorious potentially disruptive innovations in local health care agencies is the generation of stand-alone facilities that implement efficient (standardized) processes. There is a unique value proposition that is embedded in such clinics. The clinics are designed to both simplify the process of health care delivery, and improve the relationship between providers and patients. Hence, the service features potentially impact the patients’ functional and emotional
experiences in health care. Patients get convenient and quality care. Accordingly, many leaders in the primary care field commented on the clinics’ capacity to deliver immediate care. A president in a clinic stated: “we get you in and out right away for services that you have to wait one hour in other places.” The majority of clinics’ representatives also described the convenience features in their processes. An owner in a clinic said, “[in this clinic] no appointments [are] needed, we have after hours, weekend hours, and extended hours, so it makes it very convenient for patients.” One manager described a clinic’s service options as follows:

“we are in a walk-in basis, but we also provide appointments… we are an extended hours clinic, which means that we open on Saturdays, we open at past 5 o clock, so we close at 7pm. And we see the last patient until the 7pm and on Saturdays from 9am to 4pm. What I've heard from other companies is that they close at a certain time, so they stop seeing patients maybe 30 minutes before. For our services here, we end right at the time that we close. Which is a really good benefit and feature for people who are coming right after work, or they try to make it in, so that is a great feature for a business because it shows a lot of flexibility on our part.”

4.3. The Theory: The Innovation Process

The process of implementation of change in potentially disruptive health care agencies delivering primary care has its antecedents (pressures for change), sequence of actions (the innovation process), and consequences (impact of change). This section includes a definition of each construct and its respective concepts.
4.3.1. Pressures for change.

**Regulatory framework.** Every organization, including health care agencies can be analyzed as open systems that interact with their external environments. One aspect in the external environment of health care agencies is the government laws and regulations that promote certain industry’s behaviors. The government at three levels, federal, state, and local, is the main entity that dictates what and how much an agency must change. A clinic manager explained “one of the biggest change makers are the congress and laws, and Medicare and Medicaid, so we are always trying to comply with their demands and at the same time try to meet the patients’ needs.” Another manager in a clinic adds that every health care agency is a specific entity and that the pressures from the government to change their behaviors are difficult to interpret and measure. This manager indicated that Centers for Medicare & Medicaid Services (CMS) regulations such as those related to the *value-based approach* to health care are still not completely defined, but they are trying to comply with those. Similarly, CMS regulations influenced one health center to adopt electronic health records (EHR). A number of health care leaders gave a reason for the strength of such environmental influences on the agency’s change behaviors. The relatively new mandates are tied to providers’ incentives:

“[CMS] have found out that it is better to spend the money finding the illnesses, early on detection, than treating them after the fact. So we are now told that we have to do all these wellness, all these preventive measures, and that is how our reimbursement comes along. The better we do our job with the rules they give us, the better the reimbursement may be.”
State regulations are also relevant, a manager at a clinic gave an example of how vital it is for them to change according to the state (which provide funding for them):

“we have to follow all the rules for the state of Texas, in the private sector they can make their own rules, and they can go by those rules that they create… for us everything that we do we have to think by the book… You must make sure you know all the regulations, mandated by the state and follow them.”

The government regulatory framework that impacts healthcare is in part shaped by groups with special interests; these are actors in the market that lobby to maintain their market power. Accordingly, a manager in a free-standing clinic described that she is usually adapting to comply with the changing regulations in health care: “we do get a lot of kickbacks from hospitals, every month, every so often we get a new law that we must implement here, the insurances are changing, it is hard.” In addition, an administrator expressed her concerns about the limiting effects of regulations on health care innovations. She implied that health care organizations are pressured to change, but only in a certain way, hence maintaining current organizational structures (status quo). She stated:

“they want you to innovate to a point, because they do not want you to disrupt the system. They want you to disrupt the system to a point where they can manage it, and they still make profit at the same rate, and not create any stress. Because when you are doing innovation you affect a lot of agencies, so it is a chain.”
In the same manner, a clinic owner expressed his concerns about the regulations that dictate change in the health care market. He believes the regulations are confusing and slow the process of change. He also noted that officers in government agencies and insurers hinder the process of change in health care agencies: “[bureaucrats] do not have first hand knowledge of what is going on in a doctor’s office… they don’t make good decisions, they don’t make the best decisions. The patients suffer… [they] can’t get their health care… because of the restrictions they put on from all these bureaucracies. If I had the option to change it, I will remove all of that and put most of the authority back in the hands of the doctors with some oversight of course.”

Normative environment. The current support for certain organizational practices, processes, and structures is indicative of a paradigm shift in healthcare from provider-driven to patient-centered care. Professional associations, consumer organizations, and leaders can bring awareness to the community about the actual health care system challenges. They can establish new views, values, and practices to efficiently address challenges in health care. Those new values and practices are the normative pressures for innovation in health care agencies.

Some participants reported that the directors of clinics encouraged organizational change through appealing to professional ethics. The motivation of health care leaders to change emerged from observing the health care system disconnect from the values of providing universal health care to the population. One manager stated, “our physicians all have worked in [hospitals]… they noticed that they don't get to fully treat their patients in other organizations like the hospitals… patients become numbers, and our physicians were tired of their patients becoming numbers… they got tired of the old ways of managing [health care].” Another
example of how professional standards can guide innovative practices in health care agencies is found in a statement shared by one manager: “[the C.E.O. of the company has been] in health care for more than 20 years, and he saw that the nations’ costs of healthcare were going up, and nobody was doing anything about it.”

In addition to individual and work ethics, health care agencies in the primary care field that are successful and reputable can also dictate the need to implement organizational changes (despite their location). An administrator that traveled to a comparable city observed trends in healthcare. She mentioned her impressions, “[I thought] ok we think like a small city but with a lot of people, how can you work like a small town with a lot of people… we need to provide the same services that a big city does. So, there was a lot of demand [here], so that influenced the desire to make a change.”

Market challenges. Some health care leaders mentioned imbalances in the supply-demand forces in the health care market as antecedents for change. One manager suggested that there is an increased community need for health care coupled with a problem with lack of space in their facility: “space is one of our biggest challenges.”

Furthermore, a manager of a free-standing clinic recognized that the city was not providing enough health care options to patients. This fact affected not only the availability but also the quality of care, because the health care providers have work-overload and time constrains. She reported the following:
“we only have two major hospitals and that was it, two major in the east and two major in the west side. There is nothing else to compete with, so it was time that they had the free-standing… [we are another] option to choose from, and when you are sick you should have options to choose from where you want to go to. [Also] it was too much work load of seeing patients”

In addition to market imbalances, the presence of competitors is perceived as a threat to the agencies survival. Local health care agencies are noticing that primary care is becoming institutionalized. It is transitioning from health care delivery in small private practices to commercial medical care in big companies. A clinic owner noted the following with regards to primary care in small private offices, “what you see here with me will not be here much longer. The private provider that you can come and see, and know for many years, that takes care for you and your children, and your children's children, is on the way out…the individual provider or doctor is on its way out very quickly.”

Also, the population needs and expectations play a crucial role in pressuring change in health care agencies. Leaders in the field mentioned that the population, especially the millennials want to be served quickly. A clinic owner indicated that “change comes from the community… what dictates our change is society.”

4.3.2. THE INNOVATION PROCESS.

Recognition of need. Knowing the most cited factors that pressure change in local health care agencies is the first step to starting the innovation process. The factors that potentially guide
change in health care agencies, can be interpreted as either opportunities or threats to the survival of health care agencies. Such factors can have different origins: the internal and external organizational environments. It is assumed that a health care agency possesses a function and/or sensing element to capture information about the factors from both origins (internal and external). For example, a function to gather information from the external environment can be a research and development division (and compliance division) in the agency. As a clinic manager indicated, “we have a compliance and innovation division, they make sure that all is done according to policies, regulations, and contracts. Through them, we can initiate an innovation process.” In contrast, to gather information on internal factors that represent an agency’s opportunity to change, the analysis of performance measures can be conducted. A health care facility administrator said, “we perform change based on feedback from all the patients.”

In many relatively small health care agencies, the leaders participate in continuing education and learning activities to find opportunities to innovate. Leaders learn about the positive and negative aspects in actual health care delivery systems. The sources of knowledge come from agency meetings, external collaborations and networking, and classes and training. A culture of constant learning and high expectations in health care agencies has a strong impact on the initiation of innovation. Accordingly, a manager in a big health care company in the city talked about the organizational culture and how they find innovative ideas:

“they always want us to be better, always. We have to stay on top of what is going on, what is the latest in healthcare, how are [others] different, what are they doing in other
cities, and we actually compare to what we are doing here... So, we are always
comparing... we strive to be better.”

In conjunction with a culture of constant learning, the leader’s mindset plays a key role in
this step of recognizing the need to innovate. High-ranking officers in some health care agencies
constantly compare their organizations with similar organizations (local and international) and
come up with an innovative idea. An administrator reported:

“you need to go a see the world to see what is coming, how is the world moving, not just
in El Paso but the whole country, and internationally. What is the trend, what is the
patients need, what are they offering that makes them different; we compare each other. I
always compare, what is Canada doing, what is the UK doing, what is Switzerland doing,
what is the world doing about it. When you start doing that, you start seeing patterns, and
you see trends.”

Making comparisons with others, noticing gaps in the health care market, and dreaming
about a better way of serving patients brings about questions for innovations. A clinic owner
shared his experience with disruptive innovations, “I observed what was going on [in primary
care]. If you have a cough or fever or something (acute and episodic in nature), you are not going
to wait four weeks [to see a PCP], you are not going to go to the ER and wait eight hours. The
ER you can use for managing a heart attack. They needed something in the middle.” Likewise, a
clinic manager indicated the following about the founder of the company, “he didn't like how our
medical system was providing services to the [patients]… he decided he would create something
to help with that.”
With all things considered about information gathering and observation, when the agencies have the pertinent information related to change and innovation, leaders engage in an interpretation process to determine the applicability and relevance of the information (i.e. trends, market gaps, and market needs) to their efforts to innovate. The interpretation of information is subject to the leaders’ understanding of the market and the agencies’ goals: is this an opportunity to enhance the agency’s vision? Is this opportunity aligned with the agency’s values? Does this event represent an agency’s threat to survival? Is this innovation needed in the market? The recognition of the need to change and innovate is the first step in the innovation process and is the result of a positive evaluation of such queries.

Assessment of need. Ideally, the second step in the innovation process exists because health care innovators acknowledge that recognizing a need to change is not enough to prioritize change activities in the agency. Gathering information about areas for improvement in health care, and making initial interpretations of such information is just a first step to innovate. Then, the definition of the areas of improvement or gaps in health care, through data collection and analysis, is performed. This is named the assessment of need.

Health care leaders in the health care agencies identify different types of problems that require attention and evaluation. The following are some common examples of problems in health care agencies:

1) Asymmetries between the agency’s characteristics and market regulations. One participant described the problem she faced in the clinic, “the policies, the standards were
not here, so I implemented the policy for everyone to follow so we can meet [federal]
guidelines [wellness measures].”

2) Agency’s low performance in comparison to professional standards. Some health care
agencies were newly created because of the problem of doctors not having the option to
fully serve their patients. A clinic manager stated, “[there was] too much to be working
on in [the hospital], [doctors needed] a different environment… they wanted to try
something new where they actually have an input on the care.” And,

3) Lacking the structural and functional capacity to cope with market needs. Most
participants acknowledge the need to address the problems related to access to health
care. An administrator clarified, “you see the need, you do an evaluation, what is the
need… [to innovate you have] to have a purpose, because if [the innovation] does not
have a purpose, it is just chaos, and you just create problems for everyone.”

Ideally, the assessment of need involves conducting studies to verify the need.
Participants used common phrases to describe actions to evaluate the need to change: “we
discuss problems and their causes,” “we have a leadership team, we talk about specific cases
[problems] from different perspectives,” “we come up with ideas of what is going on, why is
something not working,” “what are the reasons to change [something], give them numbers and
facts.”

Creating a solution. Just as problems can be characterized by considering mere beliefs or
conjectures, solutions for such “problems” can be created by appealing to intuition and
heuristics. Both, problems and solutions must be properly understood and defined; ideally
through the scientific method. In the local health care field, organizational change and
entrepreneurial behaviors are primarily guided by the shifting market standards. For example, most leaders in primary care acknowledged that change in health care agencies is constant and indeed crucial to cope with the system’s challenges of limited health care access. However, leaders take different decisions to solve the pervasive problems of limited access to health care.

The experience of innovators with facing problems in health care delivery is a salient trait that affects their decisions about the type of change they want to implement. Leaders indicated that there is no single recipe for change; every context is different and there may be many ways to approach solutions to common problems. Still, besides the inclusion of technological advancements in their value propositions (i.e. new tests), there are frequent strategies that leaders in health care agencies use to decide about solutions to implement.

For example, leaders select functions of hospital services and place them in newly organized facilities. A clinic manager suggests that the creation of focused health care facilities improve convenience features for patients and work environment for providers: “[Doctors] were saying, ok, we have 6 week waiting times in primary care, we have hospitals with ten hours of wait time, what can we do to reduce waiting times?... They collaborated and decided, let’s try this out and see where it goes... Still, if there is something that needs to be directed, we direct it.” A manager in a similar health care organization elaborated on the benefits of creating a new facility that prioritize certain health care services: “physicians sat down and say why don't we have our own [facility], we can control the traffic, we can control hours we work, schedules we do. Yes, they thought this would be a perfect concept.”
In addition, a health care center administrator mentioned that they observed what others were doing and they tried to do the same, but by designing the solution according to local norms. She stated, “if we do not have it, we reinvent it. You always find the way. I don't do exactly as they are doing it in other places, but I have the attitude and say, I am going to do it following the rules of the states so that we can fill that need… [you see the need and then you ask] what is other people doing regarding this thing and how can I participate so that I can provide the same service.”

Most high-ranking officers in health care agencies reported that to create solutions, they collaborate. A few explained the benefit of having a mentor in the process of creating the innovation. While collaborating with colleagues and/or specialized professionals and agencies, leaders brainstorm and generate a (business) plan to present the solution to key stakeholders. Other ways of brainstorming and finding solutions are forming an innovation’s team, traveling, forecasting trends in the market, and comparing with other organizations.

After deciding on implementing a specific solution, leaders in health care agencies must get approval of the plan for innovating; they should make decision-makers “fall in love with the innovation solution.” A health care manager indicated, “[to innovate] we have to go through multiple steps, this [plan to innovate] had to pass through our state representatives.” Likewise, a clinic manager noted, “first of all, I put [the request for changes] in a business plan, our social administrator may help putting a business plan together and we present to the [stakeholders]… if they approve of a change then that's it. I have worked on [innovative] projects, you have to justify the need, that is what the business plan is for, this is what I see, this is what we need, these are the reasons why it would benefit.”
Change implementation. Change implementation refers to the actions that innovators take to deliver a solution to problems of health care access in the community. When health care agencies decide which change to implement, they usually take into consideration the ease to innovate in terms of organizational financial and skills capabilities (in both the internal and external environments). The facilitators of change implementation in health care agencies include the cooperation among actors in the market—experts, colleagues, innovators, providers (health care professionals and privately-owned PC clinics), suppliers, and investors. An innovator in a health care agency credited a colleague for providing him with guidance to conduct business decisions, “[I approached] one individual that has opened up a similar type of [clinic] but in the far east side… he was very instrumental in helping me along the way and guiding me in certain decisions… very valuable information that did he provide me, technically we are not competitors… any information that he was sharing with me, I reassured that I was not going to use it as his competitor.” Other leaders in the primary care market take advantage of their organizational resources such as ICT (information and communication technologies) to “from a committee [within an innovation division] and start meeting to work with different [innovation implementation] processes. The chief, is very brilliant dealing with administrative issues, organizational and logistics. She has many tools we can use.”

Disruptive innovations in primary care are implemented with caution, following implementation standards when available. A manager in a clinic explained that with regards to the implementation of the innovations, “[the idea and implementation strategies] may have already come up through the pipe lines in another location… [the implementation of change] takes a lot, from ordering and having the [materials] for service provision… but somebody
already set the standards.” Another clinic director shared his experiences while implementing innovations, “[some years ago] when I [implemented this innovation], I tried to tailor it as much as possible as what I used to do in [practice]… I tried to get the proper equipment, the proper rooms and everything so that it could mimic a small [hospital department].”

However, the growth of potentially disruptive health care agencies through incremental adaptation often follows a trial-and-error scheme. Specifically, for the implementation of new technologies or changes that impact the value proposition and/or agency processes, a medical director commented, “this is common in any sector, medicine included. A lot of [innovation] is done by trial and error. Things that haven't been doing on a regular basis, we do things like that, some worked some didn't.” A representative of a big health care company, having a couple of clinics in the city, indicated that if they need to implement a solution (innovation), “we came together as a market (regional)… we see if we are the only ones struggling with [the problem], if we are the only ones struggling with it we fix it. Sometimes we came up with a policy or procedure and go to the corporate levels which are national, they do a test for solutions and see if those work.”

*Follow up and opportunities for improvement.* In the health care field, changes are constant. Health care agencies delivering primary care, specially the innovative ones, have to constantly adapt to the external pressures in the system. Many potential disruptive innovations in the local health care market are relatively young. Hence, those agencies face constant challenges for their survival because they have to gain public acceptance. Also, the agencies face challenges with the implementation of new policies and technologies. All these problems arise after the
implementation of change happen because individuals (patients and employees) present different attitudes toward change. However, the leaders in health care agencies have different strategies to deal with problems during and after the implementation of innovations. Important mechanisms to be considered after the implementation of innovations are directed to increase the familiarity with the innovation in the external and internal organizational environment—training, marketing, and/or constantly hiring people (i.e. in very innovative agencies, they “try to get rid of the ones that don’t accept change.”). A health care leader clarified,

“[About] the adoption of change, the strategy is repetition and constant follow up… If you don’t believe me on this disruption try it, follow up and we will see the result. Let’s do it for a week, let’s do it for a month and see what happens until it becomes a habit… Sometimes if it doesn’t work, I get a lot of bad feedback. We stop the project right away… [I innovate] within the law and the scope of practice.”

Innovators in health care explained that the implementation of innovations need to be supported by the adequate measures to avoid that the same problem happen again, and by enhanced ICT that facilitate the standardization of processes, and hence, the diffusion of innovations. A leader in a public primary health care agency mentioned that, “making sure that the problems don't happen again is more important than just taking care of it… You identify the cause to avoid it happening again… being proactive up front so that you don't become reactive on a problem.”
Additionally, branching out is a common way in which health care agencies continue innovating, a clinic manager indicated that the owner of a primary health care company has evolved in the market: “[he] started small… and he eventually began to grow [branched out] and he is now in two states.” Moreover, a manager stated, “it got initiated [in another city], so from there we kind of branched it out to different cities, and now we are one of them.”

4.3.3. IMPACT.

Innovations in health care agencies bring structural improvements. The staff and health care personnel in the agencies experience improved working areas. An administrator shared her knowledge about the impact of implementing innovations in the clinic, “they provide a better work place for employees… when you implement good changes it seems like the work minimizes because they are happier.” Similarly, with regards to the impact of potentially disruptive features (in health care structures) on the personnel, another clinic administrator noted the following:

“If you were to question all of the people that work here, and you ask them how happy [they are] of the change, they will tell you a 100%. Because [health care providers] are not being pushed to see patients quickly. [Here] they give that whole care that they have always wanted to give and have passion for… Here, they are not overworked… they are able to take their time, make good diagnoses, make good judgements… and give that one-on-one care. All of us who have moved out of the [past health care structures], it is going to be hard for us to go back, we are enjoying this part of [our profession].”
Additionally, most health care officers in participating agencies reported that innovations improve their performance measures. Such measures include quality of services, compliance with regulations, and patient volume (i.e. number of patients served—direct care and referrals). Often, the health care representatives have a mechanism embedded in their agencies to conduct surveys and gather statistical data (a metrics system). For example, they measure the patients’ satisfaction with the services through administering surveys. However, they notice a good impact in the community when they see increases in patient volume. For them, the best way of knowing that they are positively impacting the community is through patients recommending the clinic to the community (word of mouth). Also, insurers in the market require that health care agencies track quality indicators. Due to the highly regulated environment of health care agencies, it is common that meeting the standards in the market is tied to the agencies’ payment and bonus structure. Agencies have innovated to comply with those quality standards.
CHAPTER 5. DISCUSSION

Most of the literature about change in health care agencies that deliver primary care addresses the health care system’s challenges of limited healthcare access and low performance, focusing on describing the approaches of change. The studies were conducted around the world and place attention to the new ways of delivering primary health care by implementing disruptive or incremental innovations. The studies examine the models that can be applied to change in health care delivery and improve health care access and organizational performance. Knowing the delivery models and the type of technologies that the agencies apply is not sufficient to understand how the best options for change in primary health care agencies can be adopted.

Studies about the process of adoption of innovations in agencies (in any industry) focus on the factors and steps involved in such process. However, when applying the Disruptive Innovation Theory as a lens to review the literature on the process of innovation in potentially disruptive health care agencies, no studies were found. Fleuren et al. (2004) noted the need to have a theory that can be applied to the study of the innovation process in health care agencies. Also, as researchers indicated (Birken et al., 2012; Kyratsis et al., 2012; Barnett et al., 2011; Fleuren et al., 2004), innovating is a complex and dynamic process, context-specific, and non-linear.

Hence, this study focused on understanding how the local leaders, in potentially disruptive health care agencies delivering primary care, describe the process of adoption of disruptive innovations. A theory was constructed through the application of the research protocol. The theory includes the constructs, concepts, and relationships that answered the
research question of this dissertation. A total of 30 officers in potentially disruptive health care agencies participated in a semi-structured in-depth interview, and their input was crucial to construct a theory of the adoption of change in potentially disruptive health care agencies delivering primary care in El Paso, Texas. The theory presents the process of adoption of disruptive innovations in local health care agencies. It includes the factors that pressure change in the agencies, the steps through which change is accomplished, and the consequences of organizational change.

In chapter 3 of this dissertation, Table 1 presents a list of factors or determinants of organizational change that were used to create the semi-structured interview guide that was used in this research. Such factors were selected from three theories of organizational change: 1) the Disruptive Innovation Theory, 2) the General Systems Theory, and 3) the Institutional Theory. The factors represent the elements, concepts, or variables that were believed to be related to the innovation processes in local health care agencies that adopt disruptive changes. The relationship between the factors identified from the theories of organizational change and the constructed theory of the innovation process in potentially disruptive health care agencies, is discussed in the following paragraphs. This is done to highlight the similarities and differences between the previous literature about the topic under scrutiny (organizational change) and the constructed theory (from actual results). An explanation and a critique of the research findings in light of previous studies and the local context are offered.
The environment

There are laws, rules, and norms that dictate organizational behaviors. These are created and enforced by powerful actors such as governmental agencies, corporations, professional and private organizations, and patients. They have the capacity of influencing the establishment and revision of actual regulations, standards, and expectations for organizational behavior in primary care (Katz & Thompson, 1996; Zucker, 1987).

Regulations

The regulations in health care affect the consideration of adopting disruptive innovations in several ways. The health care agencies’ financial dependency with the government at all levels (i.e. federal, state, and local), the Centers for Medicare & Medicaid Services (CMS) rules (i.e. value-based approach), and the requirements for implementing electronic health records (EHR), are salient for primary health care agencies’ change initiatives. The majority of the officers in potentially disruptive health care agencies commented on their struggle to comply with the externally uncertain, and rapidly changing regulatory environment in which resources are scarce. Also, the regulatory environment in the health care field impose on the medical practice certain measures, that have to be addressed by providers but that do not consider their input.

Financial incentives such as funding and reimbursement for primary care agencies and providers are attached to the regulations, and pressure providers to comply with such laws. If they highly depend on funding from the government, they change within the law and usually tend to perpetuate the prevailing organizational structures in the field (Hillman et al., 2009; Kash
et al., 2013). Locally, some potentially disruptive health care agencies show less disruptive capacity than others due to their partial or total government dependency.

Professional associations and other private organizations do lobbying and advocate for approval of laws that prescribe what and how much change can be implemented by health care agencies; this includes the development and emergence of new models of primary care delivery. Highly disruptive health care agencies reported that they are constantly screening for new regulations, posed by private organizations, that force them to adapt and change according to their exigencies. As Herzlinger (2006) pointed out, in the health care field there are many competing interests of actors that want to maintain power and control over policies that favor their interests; they have the financial capacity to resist or promote innovations.

With the value-based programs of the CMS, laws affecting primary care are being put into practice by health care agencies. Some potentially disruptive health care agencies refer to the legislations that support the value-based programs as promoters of quality and efficient care. Disruptive change is being supported by this type of regulations, because primary health care agencies are adapting their structures and adopting technologies (i.e. EHR, encrypted messaging, etc.) that simplify healthcare delivery and makes it more appropriate for patients.

Norms and culture

There is a shift in the paradigm for healthcare delivery in the U.S from one that is provider-driven to one that is patient-centered (Kelley & Gravina, 2017). This is due to 1) a value-based payment system, and 2) an increased awareness of the system’s challenges by providers and
patients (White, 2008; Kelley & Gravina, 2017; Kimberly & Cronk, 2016). This is what leaders in potentially disruptive health care agencies are observing as one of the environmental pressures for change. They suggest that the new generations and the population as a whole is more informed about the options in the healthcare market. Hence, health care providers mentioned that the needs of patients are changing: some want more personalized services, others want to spend more interpersonal time with providers, and others expect fast and efficient care. In general, the patients are increasing their expectations for better health care options (i.e. solutions). Leaders in potentially disruptive health care agencies deliver patient-centered care, which they believe is more desirable than the traditional provider-driven approach to care. They are challenging the status quo by appealing to their professional ethics, experience, and the use of ICT.

Experienced, and conscious leaders in health care are the pioneers in either opening up the disruptive health care facilities in the city, or in implementing potentially disruptive changes in their agencies. According to the officers in potentially disruptive health care agencies, they implement change to enhance and improve the providers’ role in health care. They are more aware of the aspects that improve health care outcomes, such as considering patients’ preferences for health care services, increasing services’ affordability, and spending more time on the actual medical practice.

The majority of the officers in primary health care agencies became disruptive to have more control on the medical practice and to deliver more quality and efficient care. Most innovators in this study’s sample are prestigious doctors that believe that the environment is not promoting a valuable institutional framework that could enhance the health outcomes in the
primary care field. Before engaging in disruptive innovations, they use to feel dissatisfied in their practice because they are not providing the adequate care to patients in traditional health care agencies. Dingwall (2016) expresses that the dissatisfaction of health care providers is usually due to unmet providers’ aspirations for preserving the ethical standards of their profession.

The potentially disruptive practices in primary care generate process efficiencies. In potentially disruptive health care agencies, the services are delivered with more quality because providers can spend more time with the patient. This impacts all aspects of healthcare access. But specially, it impacts the acceptability of services through the enhancement of patient-provider trust. In this way, providers are closer to their professional values of providing adequate care to their patients.

Regulations, and norms and culture in the health care field are interlinked. They are changing because most of services are not optimal (i.e. inefficient, costly, and fragmented). Regulations require that health care providers meet quality standards. Hence, providers are now more conscious of the need to provide patient-centered care. ICT applications and the increase in providers’ and patients’ skills to use technologies are elements that have potentially started a wave of disruption in primary care. The expectations in the health care system are changing, hence this normative and socio-cultural environment are important pressures of disruptive change in primary care agencies (Boulding, 1953).
Health care market unbalance and competition

Innovative primary health care agencies consider growth opportunities in the market. They note that there is an increased demand for health care services in the community; however, there are not enough health care facilities and providers. The entry of potentially disruptive health care agencies to the market are a response to provide more and better options of primary care to patients. The leaders in health care agencies state that the majority of health care facilities are crowded with patients. They also note that with the prevalent shortage of health care providers, work overload and provider burnout is common. They are pressured to disrupt the market and reduce the costs of health care delivery, through seeking more efficient organizational structures that enhance health care productivity (i.e. availability of services). Sinsky (2006) redesignes her health care organization, to deal with the highly bureaucratic medical practice that is making her feel as a “documentation drone.” She is promoting working smarter in health care agencies to avoid health care providers’ burnout. She is a well-known innovator in primary care applying the principles of patient-centered medical home.

Some doctor’s practices are becoming aware of the efforts of large corporations to disrupt the market by implementing integrated and efficient models of care. They include disruptive primary care agencies in their integrated structures. These health care institutions are becoming less dependent on certain government regulations (i.e. they have their own insurance and reimbursement schemes), and hence exert more control on the healthcare practice. As some health care leaders indicated, the private primary care practice, its current structure, is about to disappear. Again, as Sinsky (2006) demonstrated, when health care providers can have a certain degree of environmental control, their satisfaction in the health care agency increases.
In summary, the majority of the members in this sample of potentially disruptive health care agencies initiated disruptive change because they want to reduce: 1) the administrative burdens of existing regulations, 2) the high patient volume, and 3) the endangered provider autonomy.

The innovation process

*Recognition and assessment of need*

The recognition of a need to innovate in local health care agencies delivering primary care involves gathering information and interpreting such information. The information is gathered through specific organizational agents that observe and evaluate the importance of such information. The information is important if it is an indicator of 1) an opportunity to enhance the agency’s competitive advantage, and/or 2) a threat to the agency’s survival. The structural elements in the potentially disruptive health care agencies that facilitate the recognition of need are the following: a division of team for innovation, a culture of constant learning and high expectations, and the officers’ mindset. The strategies and action taken in the agencies to recognize the need to change include field observation, meetings, traveling, training, and research.

Leaders in potentially disruptive health care agencies leverage their capacity to see the whole picture of a problem and look for alternatives to alter the status quo. Their capacity to adopt disruptive innovations in primary health care agencies may relate to the following individual characteristics: their perceived self-efficacy, creativity, risk-taking behavior, and
orientation to scan trends and note opportunities to further their competitive advantage in the market (Vecchiarini & Mussolino, 2013; Hockerts, 2017).

The local health care agencies are following an open innovation model where the firms take into consideration the internal and external sources of information to innovate. They gather knowledge from the internal and external environments to generate innovative ideas that can be implemented. The agencies give special importance to the following sources of information: patients’ feedback, competitors’ or allies’ innovative activities, and new research at universities. Some agencies mention having a specific department on research and development (R&D) or an innovation team as a source of knowledge and novel ideas; none mention having a consultant or the input from suppliers (i.e. equipment and technologies). The recognition of need to innovate through information gathering, generates an initial propensity in potentially disruptive health care agencies to engage in change activities. (Gomez, Salazar, & Vargas, 2016).

After local health care agencies identify an area of improvement, they clearly define the need to change through evaluation activities. The leaders in the local field of potentially disruptive health care agencies discuss, brainstorm, and conduct studies to identify the causes of the most salient problems in delivering primary care. They usually look at the following problems: 1) complying with policies and regulations, and 2) lacking the infrastructure, capability, and functional capacity to deliver optimal primary health care. In other words, they are responding to changes in the regulatory framework and providers’ and patients’ expectations for better health care outcomes. It can be noted that the leadership in these innovative health care agencies is composed of knowledgeable and experienced individuals whose roles allow them to
activate the communication system in the agency to share a concise report on problem definitions that the agency faces.

The data generated about the problems are gathered directly from the study of all the elements that cause that patients, providers, staff, and other stakeholders to struggle in their efforts to achieve their goals (i.e. optimal care, efficient service provision, law enforcement, job satisfaction, etc). For potentially disruptive primary health care agencies, conducting needs assessment is the most frequent element used to prioritize change and generate opportunities to improve health care access (Guo, 2003).

Solving the problem though change design and implementation

The health care system is constantly changing in response to multiple determinants. It is always finding ways to adapt to the constant environmental uncertainties created by the economic, epidemiological, and demographic transitions, and by the increased awareness of new forms of technologies that affect service delivery (Michigan Center for Health Professions, 2010). Moreover, locally, the context of the health care system has its own challenges. As leaders in the primary care field indicated, there is no recipe for change and the use of technology to address problems related to health care access is not the only option for evolving in times of high risk and uncertainty.

Potentially disruptive health care agencies establish new clinics and, in that way, recognize that they can recover an amount of control and authority in their medical practice. This allows them not only to incur savings in costs, but also to offer convenient features to their
services. While designing a solution, leaders in the field often mimic what other firms in primary health care are doing innovatively. The effect of the emergence of disruptive agencies is also due to the heterogeneity of market increases. The promotion of competition in the market is necessary for the betterment of the health care field (Bodenheimer, 2005).

However, potentially disruptive health care agencies adapt their organizational structures to include the understandings of similar agencies in the local environments. For example, the emergence of free-standing clinics is noticeable since approximately five years ago; this causes similar organizations to develop as well. As Hargadon & Douglas (2001) mention, innovators understand that there are legitimated organizational structures and social ideas in the health care field. By doing so, they strive to remain flexible in order to accept the new values proposed by them with new forms of health care delivery. The innovators have to design their structures, strategies, processes, and culture in ways that the patients and the stakeholders in the environment can easily understand and embrace. Consistent with the institutional theory, new organizational structures are desirable when stable and legitimated organizations are less efficient than emerging ones (Zucker, 1987). Potentially disruptive health care agencies in this study indicate that one of the greatest benefits of entering the primary health care market with their new structures is their increased process efficiency, heading to increased patient and staff satisfaction.

While thinking about solutions of a problem, the leaders in the field indicate that familiarity with the new structures is key to its acceptance; some struggle with it. Some primary care clinics that are part of a larger set of clinics located along the city, experience patient
crowding. Other non-for-profit clinics have difficulties to attract patients. This is salient given the actual need for health care facilities and increased demand for health care services. The case may be that patients in the periphery (of the city) feel more comfortable with certain organizational structures; they may feel more comfortable to interact with established health care agencies than with new ones. Therefore, change and the adoption of disruptive innovations in primary care are attached to subjective norms, perceived agency value, and self-efficacy to navigate the services, which can constraint and/or ease the innovation’s public acceptance (hargadon & douglas, 2001; Hameed & Counsell, 2014).

Constant interplay between shifting the understanding of prevailing organizations to newer organizations. As some innovators mention the shift to innovate if difficult they have to employ systems thinking to forecast potential disruptive innovations and to identify implementation facilitators. With regards to human interactions pertaining to decision making, innovators will bring the support of colleagues or other innovators in the field. They collaborate and discuss on the evident benefits for health care providers of investing in potentially disruptive health care agencies. Christensen (2009) points out that the replacement of actual health care agencies’ structures (non-disruptive) is not the purpose of disruptive innovations. Hospitals and other primary care structures have been historically beneficial for people and communities in some of their features. For innovators, the same is true. The desirable end of innovating is to generate a heterogeneous and competitive market, where sufficient options for patients reduce costs and increase the efficiencies among participants in the market (i.e. all can profit from wellness).
Once the leaders in the primary health care field have the pertinent information on the problem and the solution, they engage in planning. They generate documents or present the information about innovations in different ways (i.e. multimedia) to key informants and stakeholders. Although officers in potentially disruptive health care agencies do not provide detailed information as to how to create the business plan, they basically point to the importance of making others “fall in love with the new idea; they justify the need.” It is noticeable that innovators express their ideas by using rational decision making because they strategize in an environment of scarce resources and many regulations. In the case of potentially disruptive health care agencies, participants are cognizant of the difficulties of change but they usually look to a leadership that is motivated by favoring the patients and by applying moral and social frameworks. This is somewhat salient in this study because change agents in potentially disruptive health care agencies have mindsets, skills, and abilities that allow them to become interested in innovating in spite of the marked uncertainties and barriers to change.

The implementation stage begins after approval of the plan to implement changes that are characteristic of potentially disruptive health care agencies. In this stage, cooperation among innovators and other actors in the health care field continues. As mentioned previously, the process of adoption of disruptive innovations can be seen as an interconnected web of actors; they cooperate and support each other. This may be due to the fact that innovators are often respected and prestigious doctors whose contribution to the health care field goes beyond their medical service. They also build connections in the community (i.e. insurers, providers, patients, etc.) in response to the beneficial effects that they previously get from others who are involved in supporting this type of innovations. This is important to notice because according to potentially
disruptive health care agencies, they do not follow the past understandings of health care in order to innovate. They have to follow new regulations and standards for the creation and proper functioning of the new organizations. As mentioned throughout this document, disruptive health care agencies do not intend to compete with existing structures. Most participants clarify that they implement innovations to ease the burden of the cumulative challenges in traditional medical practices.

In order to create the disruptive attributes of an agency, flexibility is continually practiced and aspects of technology and process design permeate this stage. In a few disruptive clinics, a barrier to the full implementation of disruptive attributes is conflicting interpretations of the innovation internally. The investment in ICT during the implementation process is desirable because it can minimize miscommunication issues and expedite the management of change implementation. The experience of the innovator is central to implement disruptive changes, because they observe where the problems are in traditional health care structures. The implementation stage in local health care agencies takes into consideration the capacity and aptitude of an implementation team (when available); but in general, it is the head of the agency who approve decisions in all matters.

In summary, the implementation of the innovation happens when the adequate organizational resources (i.e. infrastructure, strategy, and culture) are available. The explanation of the activities that innovators conduct during the implementation stage are aligned with the ideas of Barnett, Vasileiou, and Djemil (2012). This is because innovators in this study explain that a thorough evaluation of the utility of the change is crucial to create confidence among
participants in the innovation process in potentially disruptive agencies. Such confidence is built by using technologies, strategies, and team-based approaches to understand and deal with all conflict and technical issues that arise while implementing a change. As some participants noted, evidence is key to implement changes in health care to comply with regulations, attract funding, and avoid waste for resources.

Innovators interviewed in this study are risk takers, and they feel free in their potentially disruptive health care agencies to preserve their autonomy to value a culture of constant learning and change. In general, they are always dealing with problems for which they have to try solutions (trial-and-error). That is why the majority of the officers in potentially disruptive health care agencies indicate that their personnel are often trained to see trends and accept that policies and big corporations are changing the way primary care is delivered. In these potentially disruptive agencies, leaders recognize the need to have the human capital that is willing to support innovations and recognize the constant transformation in the health care landscape.

*The continuity of disruptive innovations in primary health care agencies*

This dissertation started with detailing the problems of inadequate primary health care access, and inefficiencies in the system, primarily those found at the agency-level. In potentially disruptive health care agencies, there is a stage in which innovators evaluate their success. They do so in terms of user and staff satisfaction, performance measures, and meeting government requirements (i.e. quality indicators). Previous studies identify that in this stage, acceptance to the innovation is crucial to continue the innovation process (i.e. continue improving existing innovation attributes). In the local primary care field, activities to promote disruptive and
innovative services are needed. The challenge is that the potentially disruptive agencies are relatively new in the market, and their benefit to society may not be delivered adequately due to lack of awareness and resources. In order to promote the diffusion of innovations, Greenhalgh (2004) proposes that the changing agencies, external parties (i.e. technology purveyors) (Hoeber & Hoeber, 2012), user associations, and policies have to provide access to information that increases the trust of new agencies. The participants of this study conduct regular evaluations of their performance; these data would reinitiate the conversations about change and adaptation. For example, some service features may be modified to be more inclusive to the variability of patients’ knowledge, skills, and cultural background regarding the use of services and products that they receive.

Depending on the size and structure of the potentially disruptive health care agency, the options for continuing growth varies. Some leaders in small health care agencies indicate that they do not have plans to expand their services or branch out. According to Scott and Bruce (1987), this is due to the fact that as they are small enterprises, potentially disruptive, and relatively new, they use their profits to reinvest in the agency and pay their debts. The leaders in these small potentially disruptive agencies prioritize the strengthening of their functional and administrative capacities. As Scott and Bruce describe that if they grow, they do so by adding more services or products; they are in an “entrepreneurial stage”. Conversely, potentially disruptive health care agencies that are large and have integrated structures possess advantages for growth; they mention that they branch out, and some make acquisitions (i.e. doctor’s clinics) to broaden their impact in the community. This is consistent with the idea that expansion or
branching out happens when the agency becomes more formalized and reflects standardized systems of operations (Scott & Bruce, 1987).

Impact

Ideally, innovations are implemented in organizations to enhance their competitive advantage, and to improve the lives of individuals and societies. This is the case of the potentially disruptive health care agencies in this study; they bring benefits to the healthcare marketplace. In summary, the benefit of potentially disruptive health care agencies is the creation of an improved internal environment where providers, staff, and patients feel more satisfied. In agreement with Rozga (2009), and Porzsolt, Ghosh, and Kaplan (2009), the presence of the innovative agencies bring convenience features for patients, facilitate access to health care by geographic location, and reduce the costs of care by creating efficient business structures. The implementation of disruptive innovations in these agencies are creating competition in the market, and this can have two effects: that the doctors in traditional private practice implement disruptive changes, or that they disappear.

5.1. Conclusions

The process of change in potentially disruptive primary health care agencies has not been studied yet. Even though the researcher started the investigation with certain expectations for results, the resulting theory, grounded in the participants’ experiences and views on the process of innovation, reflects a novel integration of the steps and factors that are present in the process of change in potentially disruptive health care agencies delivering primary care.
The first step in the adoption process in potentially disruptive health care agencies is the identification and evaluation of a need to change. In the local context, the agencies feel pressured to change because the regulatory framework in health care is constantly changing. As indicated by the study participants, there is an increased awareness in the public of the inability of the health system to cope with increasing demands for health care. One aspect that is very salient in the context is that innovators recognize that the actual paradigm of health care, which has been provider-driven, has to change to one that favor wellness.

In the first step of innovating, the structure of the health care agency has to have the capacity to interpret the need to change. In local health care agencies, important elements in the structure are a research or compliance division, a leadership team, and reports of the agency’s performance. According to leaders in the primary care field, a culture of constant learning facilitates the initiation of activities such as training and continued education, which will maintain a vision of striving to always serve their patients in the best ways possible. The majority of leaders in the potentially disruptive health care agencies have a mindset that values the recognition of trends in the market that improve primary care delivery. Despite the fact that the need to restructure the primary care field is easily noticeable (i.e. well-known systems’ challenges), the health care agencies conduct studies and report data to produce a better understanding of the problem.

In the second step in the innovation adoption process, leaders solve the access and efficiency problems in health care by generating new agency structures that take advantage of ICT implementation. Leaders in potentially disruptive health care agencies are the primary
person carrying out decision making to propose the agency’s restructuring or creation. They often collaborate with colleagues and see what others have done with implementing disruptive innovations. The main tool they use is a business plan that they present to their personnel and other stakeholders in the field. To implement the change, they collaborate with key informants. The following elements are crucial to effective change implementation: financial resources, human skills, experts, and suppliers.

In the final step to innovation, it is recognized that change is constant and that internal and external problems will continue to challenge the potentially disruptive health care agencies’ configuration. The main problem of the innovative agency is to gain public acceptance. Gaining public acceptance is important for them to survive and continue growing in the marketplace. That is why the model of adoption of disruptive innovations is drawn as a cycle; regular feedback would sometimes reinitiate the innovation process.

5.2. Limitations of the study

The model of adoption of disruptive innovations in primary health care agencies is not generalizable due to the methodology used. The model is intended to be a guide to support interested parties in the primary health care field in adopting disruptive innovations. Because the process of generating the theory was inductive, it is not presenting detailed information about all the factors involved in the innovation cycle. Only the most salient factors in each step in the innovation process are described.

An important aspect that reduces the long-term impact of the present theory is that it represents a snapshot of the current ways in which innovators change their structures with the
intention to disrupt the market. Because change is constant in all dimensions (i.e. pressures for change, the process, and impact), the study of the disruptive innovation process has to be continuous and periodically add to the body of knowledge in the field so that faster and more effective ways of implementation can be made available to the public.

5.3. Implications for practice

The constructed theory or model for the adoption of disruptive innovations in primary health care agencies can be a useful tool for stakeholders in the local primary care field. A purposive sample is used for this study and is relatively homogeneous in terms of agency size and age. Therefore, the model can be of the interest to entrepreneurs and actual owners of primary health care agencies of similar characteristics in the city, or in other cities with similar environments. The model is very intuitive in the sense that the information flows from step to step, and is translated or interpreted in ways that keep the motivation of decision makers to continue the innovation cycle. The model includes the steps and the most salient facilitators for disruptive change in primary health care agencies.

Innovating implies risk-taking behaviors and the investment of resources; not all people are willing to engage in innovative endeavors in highly uncertain environments such as in health care (i.e. highly regulated). Strong leadership is required to adequately share why it is important to adopt disruptive innovations. Then, the how-to can be shown to the interested parties (i.e. the primary health care field) by presenting the current model for disruptive change.

Many agencies implementing disruptive innovations face the challenge of attracting patients (as they expect). It is important to educate the public on the presence and function of disruptive innovations. This has to be done by a reputable leader or key informant in the city that
promotes the disruptive innovations from a recognizable point of view. The leader has to present disruptive innovations to the public as having a value in the socio-cultural environment in which they are presented. When the public understands disruptive innovations in terms of finding some aspects as similar as existing non-disruptive innovations, they will start paying attention to the advantages that the new approach brings. This study draws from the institutional theory, that states that the innovations would be accepted if they recall the actual legitimated organizational structures in the system. Innovators have to deal with aspects of legitimization in the market and patients familiarization. The main recommendation for practice is that an autonomous leader, and a group of allies with the interest of implementing disruptive innovations, experiment with the present model of change. They have to have the patience to educate the public about the benefits and functions of the potentially disruptive health care agency.

Because the regulatory environment is one of the main aspect impacting the diffusion of disruptive innovations, policymakers are required to be more conscious about the multiple interests that are in play when considering the implementation of regulations. They are required to make regulations that are unambiguous, based on evidence, and provide tools for their implementation that ultimately affect innovation. Disruptive change is promoted and facilitated though regulations. Policymakers have to proactively seek change and adapt regulations to protect and promote the populations’ health first, and then to enhance the benefit of all actors in the primary care field affected by the provision of such regulations. They also have to consider the input of innovators so that competition in the market can be promoted in the primary health care field.
5.4. Recommendations for future research

This study on innovations was based on the knowledge and experiences of leaders in health care agencies delivering primary care. Hence the model of adoption of disruptive innovations represent the integrated views of one officer per selected agency. The recommendation is to gather data on the innovation process from more than one person, who are related to the innovation process in participating agencies. This is because the interactions that happen before, during, and after the process of adoption of disruptive innovations could be detailed from two or more points of view. This study focused on finding out the facilitators for change, but there may be antagonistic interactions among key actors in the innovation process. Understanding why those opposing effects happen would be useful to minimize the problems that arise in relation to organizational change.

Another important aspect to study in relation to this dissertation topic is the diffusion of disruptive innovations. There are technologies that may help in forecasting the emergence and/or decline of disruptive primary health care agencies. It would be important to study that trend and to determine the causes for such occurrence. One may expect that if disruptive innovations in primary health care diffuse in the local market, there would be a point of saturation (investigating such point is also important). Reaching that point is crucial because it would mean that the public would benefit from the existence of a market that is diverse and prepared to serve the actual demand for primary health care services. Also, if disruptive innovations are not being diffused, the investigation of the barriers to disruptive agencies’ market entry would be warranted.
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APPENDIX A

Invitation letter

Re: The adoption of disruptive innovations in health care agencies

[Date]
Dear [high-rank officer or organization representative name]

I thank you in advance for taking the time to read this letter. You are among a selected group of leaders in health care agencies in El Paso, Texas who are being invited to participate in this study. For this study, I have structured a guide to interview the leaders in local health care agencies about the process of the adoption of disruptive innovations. Hence, the study involves participating in one or more interviews (up to three) that will require approximately 30-60 minutes of your time (each).

I would like to introduce myself. I am a doctoral student and researcher in the Interdisciplinary Health Sciences PhD Program, College of Health Sciences/School of Nursing at The University of Texas at El Paso. I am dedicated to studying the actual market strategies that potentially increase access to health care in our community. As I am sure you are aware, the adoption of innovative approaches can potentially increase access to health care services. In an effort to understand how and why the adoption of disruptive innovations occurs in local health care agencies, I am conducting a study.

Participation in this study is voluntary and confidential, and no identifying information will be included in any report derived from the analysis of the study results. There are no known risks associated with this research, and there will be no direct benefits to you for taking part in this study. However, your responses during the interviews will be essential to increase the chances for the effective adoption of disruptive innovations in the local health care industry.

You have the right to not take part in this study. If you decide to take part in this study, the results of the study will be shared with your agency. In this mail package, I have included a card that gives you the option to communicate to me your decision regarding participation in this study, including: 1) whether you want or not to be contacted about this study in the future, and 2) your preferred contact information for future communications.

Thank you again for your possible participation in the interviews. I will contact you in about two weeks regarding this study. In case you agree on participating in this study, we will establish a date and time for the interviews.

If you have any questions about this study, please contact Aurora Aguirre Polanco, Principal Investigator at 9157318256 or aaguirrepolanco@miners.utep.edu. Thank you very much for your consideration.

Sincerely, [Signature]
APPENDIX B

Interview guide from the integrated theoretical framework

Purpose.
This interview is aimed at understanding the process of adoption of disruptive innovations according to your experiences in relation to such process. The questions that I will ask you relate to your knowledge, perception, and practices about the innovation, the innovation process, the factors involved in such process, the human interactions that produce the adoption of the innovation, and the impact of the innovation.

Questions.
1. Can you please describe the disruptive innovation embedded in your organization? (i.e. characteristics)
4. What pressured the initial consideration/discovery of disruptive innovations? (i.e. environmental and organizational factors)
2. How the adoption of disruptive innovations occurred? Can you give me an example of a situation that reflects the past actions related to the process? (i.e. interactions/pathways prompted by cultural differences, communication and feedback loops, etc.)
6. Who (individuals) were involved in the decisions and actions to implement disruptive innovations? (i.e. including individuals outside your agency such as partners and allies) How would you describe each person involved in such decisions and actions? (i.e. in terms of personality traits, and attitudes toward change and risk)
7. Can you identify the strategies/mechanisms for decision and adoption of disruptive innovations?
9. What is the impact of disruptive innovations within and outside your agency? Do you have a way to evaluate it? (i.e. efficiency and access)
APPENDIX C

University of Texas at El Paso (UTEP) Institutional Review Board
Informed Consent Form for Research Involving Human Subjects

Protocol Title: The process and impact of the adoption of disruptive innovations in local health care agencies
Principal Investigator: Aurora Aguirre Polanco
UTEP CHS-SN: Ph.D. in Interdisciplinary Health Sciences Program

In this consent form, “you” always means the study subject.

1. Introduction
You are being asked to take part voluntarily in the research project described below. Please take your time making a decision. Before agreeing to take part in this research study, it is important that you read the consent form that describes the study. Please ask the study researcher to explain any words or information that you do not clearly understand.

2. Why is this study being done?
You have been asked to take part in a research study of the process of adoption of disruptive innovations in local health care agencies, and the impact of disruptive innovations on access to care and agency’s performance.
A minimum of 30 leaders representing disruptive health care agencies (delivering primary care) will participate in this study at preferred locations in El Paso, Texas.
You are being asked to be in the study because from previous contact with your agency, it was determined that your agency engage in innovative practices or strategies to cope with market and other uncertainties. Additionally, you as a high-ranked officer represent the trustworthy source to gather accurate and robust information on the process of innovating within your agency.
If you decide to enroll in this study, your involvement will last about 30-60 minutes. Also, I ask your permission to further contact you in case another or two interviews are required from you. An additional interview will also last about 30-60 minutes or less.

3. What is involved in the study?
If you agree to take part in this study, the researcher will proceed to read the questions from the interview guide and record answers to the questions. The questions about the process of adoption of disruptive innovations are included the following domains: the factors involved in the process of adoption, the human interactions that facilitate decision-making, and the impact of the adoption of innovations.

4. What are the risks and discomforts of the study?
There are no known risks and or benefits associated with this research. However, this research may help us to understand the facilitators and barriers for the adoption of innovations in the local health care market. The information will be useful to promote alternative solutions to improve access to primary health care and the efficiency of business strategies in the agencies.

5. What are my costs?
There are no direct costs. You will be responsible for travel to and from the research site and any other incidental expenses.

6. Will I be paid to participate in this study?
You will not be compensated for taking part in this research study. The results of the study can be shared to you if you want to.

7. What if I want to withdraw, or am asked to withdraw from this study?
Taking part in this study is voluntary. You have the right to choose not to take part in this study. If you choose not to take part in the study, there will be no penalty or loss of benefit. If you choose to take part, you have the right to skip any questions or stop at any time. However, we encourage you to talk to the researcher so that she knows why you are leaving the study. If there are any new findings during the study that may affect whether you want to continue to take part, you will be told about them. The researcher may decide to stop your participation without your permission, if he or she thinks that being in the study may cause you harm.

8. Who do I call if I have questions or problems?
You may ask any questions you have now. If you have questions later, you may call the PI Aurora Aguirre-Polanco at (915-731-8256) or aaguirrepolanco@miners.utep.edu. If you have questions or concerns about your participation as a research subject, please contact the UTEP Institutional Review Board (IRB) at (915-747-7693) or irb.orsp@utep.edu.

9. What about confidentiality?
Your part in this study is confidential. None of the information will identify you and your agency in any presentations, meetings, and publications. All records including audio files and notes taken by the researcher will be secured in the following ways: 1) the audio-recording device and paper-based documentation will be stored in locked cabinets, and 2) digital transcriptions will be password protected. Only the researcher will have access to the materials gathered from data collection and analysis.

10. Authorization Statement
I have read each page of this paper about the study. I know that being in this study is voluntary and I choose to be in this study. I know I can stop being in this study without penalty. I will get a copy of this consent form now and can get information on results of the study later if I wish.

Participant Name: ____________________________ Date: __________

Participant Signature: ____________________________ Time: __________

Consent form explained/witnessed by: ____________________________

Signature

Printed name: ____________________________

Date: __________ Time: __________
VITA

Aurora has conducted research on various projects about health workforce development, and innovations in health care agencies. Aurora explored the mechanisms for restructuring the local primary health care field and promoting its expansion from a disruptive innovations perspective. She is interested in multi- and interdisciplinary approaches in the area of health administration and policy to positively impact the access to health care of vulnerable populations.

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This thesis/dissertation was typed by Aurora Aguirre-Polanco.