Abortion Care and Medicaid Policy in Illinois

BY

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THESIS

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CFIR	Consolidated Framework for Implementation Research
HB 40	House Bill 0040 of the 100th Illinois General Assembly
HFS	Illinois Department of Healthcare and Family Services
LARC	Long acting reversible contraception
IOM	Institute of Medicine
MCO	Managed Care Organization

SUMMARY

Illinois House Bill 40 (HB 40) went into effect 1/1/2018, enabling for the first time in decades, Illinois state funds to be used to cover abortion services for Medicaid eligible persons without restriction (Norwood, 2017). Removing restrictions on Medicaid coverage of abortion services has the potential to alleviate some financial constraints of abortion seeking by Illinois Medicaid enrollees. However, this potential is contingent on abortion providers in Illinois participating in Medicaid. Research is limited on what factors are important to abortion-providing physicians or facilities becoming or continuing to be Medicaid providers. Moreover, there appears to be no research to date on the implementation experience or process of an abortion-providing facility becoming a Medicaid provider.

In order to understand abortion-providing facilities' perceptions of Medicaid, HB 40, and the implementation of post-HB 40 Medicaid billing systems, staff representing 83% of abortion-providing facilities in Illinois were interviewed approximately one year after HB 40 went into effect, and their responses were thematically analyzed, with themes generated both deductively from the Consolidated Framework of Implementation Research (CFIR), and inductively from the data. Most non-hospital facilities in Illinois were not Medicaid providers before HB 40 because they expected Medicaid would not pay for most Medicaid-enrollees' abortions under the pre-HB 40 coverage policy. The main barrier to becoming a Medicaid provider for abortion-providing clinics was the universal perception that Medicaid's reimbursement rate for abortion services was too low for clinics to be financially sustainable; clinics that chose to apply to become Medicaid providers did so because their mission of enabling access to abortion outweighed their financial concerns. Facilities that sought to become Medicaid providers after the passage of HB 40 described the application process as frustrating and lengthy due to an out of date computer system, lack of guidance or helpful resources from Medicaid, and long periods of time in between repeated rejections. The primary facilitators of becoming a Medicaid provider within a year of

beginning the application process were a particularly dedicated or experienced individual driving the application, the tangible and social support provided by an ACLU-convened workgroup, and privately donated funds that covered care for Medicaid-eligible patients for clinics in the Medicaid application process.

Abortion-providing, Medicaid-accepting facilities described three major barriers to billing Medicaid after HB 40. First, at the time of the study Illinois Medicaid forms had not been updated to reflect the expanded reasons under which Illinois Medicaid covers abortion services, so facility staff were left confused as to whether or how they should alter the official forms to be accurate. Second, Medicaid managed care organizations (MCOs) have their own criteria under which they will cover abortion services, and facility staff described these as inconsistently applied and frequently changing. Third, billing for abortion services was still done via a paper rather than an electronic system in Illinois Medicaid, which facility staff thought was burdensome, impossible to track, and introduced opportunities for errors. The primary implementation strategies that overcame these barriers were dedicated individuals and the ACLU-convened workgroup.

Despite these challenges, the majority of abortion providing facilities in Illinois were able to provide financially covered abortion services to Medicaid-eligible Illinoisans in 2018. The administrative records of one Illinois facility were analyzed to identify whether covering abortion care affected the demographic characteristics or gestational age at termination for abortion patients from Illinois. There were no changes in patient makeup that were not also observed in patients from other states. There was a trend toward increasing proportions of second trimester abortions for Illinois residents, but this began before HB 40 and did not change after HB 40.

The findings of this study have implications for future policy, practice, and research. Other jurisdictions that intend to similarly expand Medicaid coverage of abortion services may see faster implementation and greater Medicaid participation by abortion-providing facilities through efforts to inform and engage those involved in abortion-service provision. If a Medicaid policy change is imminent, abortion-providing facilities may speed their implementation by nominating or hiring individuals to champion the process, and by participating in a workgroup or learning collaborative. The limitations of this study also point to directions for further research, in particular evaluations of the impact on abortion-seeking, Medicaid-eligible Illinoisans' finances, and quantitative analyses with data from the entire state or a longer period of time after HB 40.

I. INTRODUCTION

A. Background

In 2014, 21% of pregnancies in the US ended in abortion, for a total of 926,190 abortions performed in 2014 (Jones & Jerman, 2017a). Approximately 30% of US women have an abortion within their lifetime. As abortion is a relatively common and widespread medical procedure, studying and improving access to abortion can have widespread impact on a population.

In the US, people are not necessarily able to get abortion care when and how they want it. There are numerous public health risks associated with restricted abortion access. Abortions performed within the first 8 weeks of pregnancy have the lowest risk for abortion-related mortality, with a 38% increase in mortality risk for each additional week of gestation (Bartlett et al., 2004). Factors that delay access to abortion services increase gestational age at termination and put patients at increased risk of death or complications. People with limited access to legal abortion may seek terminations outside of the formal health care sector (Deeb-Sossa & Billings, 2014; Jerman et al., 2018), which are unregulated and therefore may be less safe. In cases where unintended pregnancies are carried to term due to lack of abortion access, women are exposed to rates of morbidity and mortality that are higher for childbirth compared to abortion (Raymond & Grimes, 2012), as well as higher risks of negative physical and mental health outcomes for themselves and their children (Finer & Kost, 2011). In some cases, women may be forced to carry to term pregnancies that were intended but had health risks associated with them, in which case they would be subject to the health risks they wanted to avoid through abortion. These health concerns have led some to argue that women should have full access to abortion as a harm reduction strategy (Erdman, 2012).

Timely access to necessary health care is recognized as a dimension of health care quality (Institute of Medicine, 2001). Earlier abortions are safer, less medically complex, and preferred by most

abortion-seekers (Finer et al., 2006). Therefore, facilitating timely access to abortion is a vital component of a quality health care system. Research is needed to identify factors that prevent women from accessing desired abortion services, and should evaluate interventions and health systems changes that can prevent, overcome, or avoid such factors.

In 2018, 16 other states used state funds to enable Medicaid to pay for all or most medically necessary abortions (Guttmacher Institute, 2020b). Even in these states that purportedly fund all or most abortions for Medicaid enrollees, Medicaid-funded abortions are not necessarily accessible. Those seeking abortions using public funds may be prevented by lack of knowledge about available coverage, problems enrolling in the public funding, or difficulty locating an abortion provider that accepts public funding (Bessett et al., 2011; Drey et al., 2006; Foster et al., 2008). Roberts et al. (2014) found that 34% of abortion patients possibly eligible for Medicaid coverage for abortion paid out of pocket rather than have their abortion paid for by Medicaid.

Patients' difficulty locating an abortion provider that accepts Medicaid indicates the importance of abortion providers and facilities in Medicaid-eligible patients' access to care. In states where Medicaid funding is restricted to abortions for rape, incest, or life endangerment, some or most abortion-providing facilities do not accept Medicaid (Kacanek et al., 2010; Kimport & Rowland, 2017). Staff at these facilities reported that getting Medicaid reimbursement even for eligible cases is so difficult, and that in actual practice presumably eligible cases are reimbursed so rarely, that they chose not to accept Medicaid (Kacanek et al., 2010; Kimport & Rowland, 2017). In states with Medicaid funding for abortion for reasons beyond rape, incest, or life endangerment, abortion facilities also show a high variance with respect to the acceptance of Medicaid payment, from 0 to 100% of potentially eligible women getting Medicaid funding (Roberts et al., 2014). This suggests that facility and state characteristics strongly influence facility Medicaid participation and reimbursement (Roberts et al., 2014).

From the passage of the Hyde Amendment in 1976 until December 31, 2017, Illinois Medicaid did not reimburse for abortion except when the pregnancy resulted from rape or incest, or to preserve the health or life of the pregnant person (Lourgos & Rumore, 2018). In the 2017 legislative session, HB 40 was signed into law, which removed the provision excluding "abortions, induced miscarriages, or premature births" from the list of services covered under the State's Medical Assistance Program (Illinois General Assembly, 2017). As of 1/1/2018, Illinois allows state funds to be used to cover abortion services for Medicaid eligible persons (Norwood, 2017). This provides a rare opportunity to observe the effect of an expansion of abortion coverage on abortion providers and patients. The transition from operating in a state with policy that restricts Medicaid abortion funding, in which abortion providers and facilities may have little reason to bill Medicaid, to a more permissive Medicaid environment in which facilities may more commonly expect Medicaid reimbursement, is worthy of study.

B. Aims and Research Questions

For this work, I have written three chapters to be submitted for publication in peer-reviewed journals. Chapters IV and V are based on qualitative data from semi-structured interviews with staff at most (83%) abortion-providing facilities in Illinois. Chapter IV describes themes of implementation processes and strategies involved in changing payment policies for abortion services among facilities in Illinois. Chapter V describes abortion-providing facilities' experiences with Medicaid provider application and billing procedures after HB 40 went into effect. Chapter VI is based on quantitative data from a retrospective chart review of records from a single abortion-providing facility in Illinois. This facility is not a part of a larger affiliate organization and, while located in Illinois, is near the border of several states with more restrictive abortion laws; findings from this facility may not be generalizable to all abortion-providing facilities. This quantitative analysis is designed to document patient characteristics and abortion services in one facility in Illinois before and after HB40 went into effect.

Chapter IV aim: to describe the implementation of post-HB 40 Medicaid billing for abortion services at Illinois abortion-providing facilities and identify implementation barriers and facilitators.

Research question 1a: What are the activities and perceptions of abortion-providing facilities implementing Medicaid billing for abortion services after HB 40?

Research question 1b: What factors or strategies enabled a facility to adapt their payment policies and procedures to bill Medicaid for abortion services post-HB 40, and were their particular factors or strategies that sped facility adaptation?

Chapter V aim: to describe the experiences of staff at abortion-providing, Medicaid accepting facilities with Illinois Medicaid after HB 40.

Research question 2a: What are major barriers to billing Illinois Medicaid for abortion services after HB 40? How do abortion-providing facility staff think existing barriers could be addressed?

Research question 2b: Do abortion-providing facility staff think Medicaid covering abortion services without restriction has had an impact on their facility?

Research question 2c: Do abortion-providing facility staff think Medicaid covering abortion services without restriction has had an impact on abortion patients?

Chapter VI aim: to describe the effects of financially covered abortion for Medicaid enrollees on abortion patients' demographics, distance traveled, and gestational age, based on one southern Illinois abortion facility with data before and after HB 40.

Research question 3a: At this single clinic, did patient characteristics (age, race, marital status, parity, gravidity, distance from clinic) change between the pre-coverage period of 2016-17 and the post-coverage period of 2018?

Research question 3b: Did the proportion of second trimester abortions among Illinois abortion patients at this single clinic change between the pre-coverage period of 2016-17 and the post-coverage period of 2018?

II. CONCEPTUAL FRAMEWORKS AND RELATED LITERATURE

A. Conceptual Framework for Chapter IV: Consolidated Framework for Implementation Research

A change in Medicaid policy regarding abortion reimbursement does not necessarily translate into use of the new policy. Implementation is the process by which a change or intervention is put into use, and implementation science is the study of the means by which an intervention, decision, or change is adopted and becomes routinely used. The Consolidated Framework for Implementation Research (CFIR) incorporates and synthesizes common constructs from nineteen implementation science theories into a single comprehensive theoretical framework (Damschroder et al., 2009). The overarching typology of CFIR provides a consistent set of defined constructs that can be used to evaluate implementation progress, guide explorations into what factors influenced implementation and how implementation influenced performance of the intervention, or develop theory. The consistency of terms, and breadth of constructs, assist research findings to be understood and used outside of their specific context.

During the transition period of the implementation of a policy change such as HB 40, a complex set of processes interact with the context and setting of the efforts. The CFIR is comprised of five major domains that influence the effectiveness of an implementation process, with each domain consisting of multiple constructs. To understand how HB 40 is implemented within abortion-providing facilities, I have chosen abortion-providing facilities as the units of measurement (rather than, for instance, individuals or geographical regions).

The first CFIR domain is the intervention itself. Constructs in this domain include perceptions of key stakeholders about the source of the policy change, the legitimacy of that source, the quality and validity of the evidence that HB 40 will have desired outcomes, whether they prefer those outcomes to others, and the perceived difficulty of implementation. The scope, radicalness, disruptiveness, and intricacy of changing Medicaid reimbursement are included here. This domain also includes the ability to

pilot the policy change and reverse course if necessary, and the degree to which the policy can be adapted to meet local needs and resources. For HB 40, I consider the core component of the intervention, that is, the essential and indispensable element of the intervention, to be the decision to bill Medicaid for abortion services after HB 40. I conceptualize the adaptable periphery of the intervention as any tailoring or changes of the work process at abortion providers, or training or reminders related to the reimbursement policy change. Lastly, this domain includes the cost of implementing the intervention: for example, the cost of providing training, changing computer systems, or ordering new forms.

The second domain in CFIR is the outer setting, which includes the economic, political, and social context within which the organizations participating in the implementation process reside. In this instance, I conceive the outer setting to be contextual factors such as the economy of Illinois, perceptions of abortion in the US, Illinois, and the local community, the degree to which abortion providers are networked with other organizations or feel pressure from other organizations to implement the policy change, and policies and incentives beyond Medicaid reimbursement.

The outer setting dynamically interacts with the inner setting, the third domain, which includes the structural, political, and cultural contexts through which the implementation process will take place. Inner setting factors might be the age or size of abortion-providing facilities, the turnover or diversity of knowledge within staff, the ratio of managers to employees, concentration of decision-making autonomy, or the nature and quality of bonding and social relations between employees at an abortion-providing facility. The inner setting includes the norms, values, and basic assumptions of abortion-providing organizations and how receptive and supportive abortion-providing facility systems and staff are to change. The inner setting also includes what resources are dedicated for training and preparing for the implementation, and how easily staff can access information about the policy change and how to alter work tasks to it.

Comprising the fourth CFIR domain are the characteristics of the individuals involved with the implementation process. Abortion-provider staff are not passive recipients of policy change; they develop feelings about changes, gain experience with them, may modify them to fit their values or working habits, and change their behavior in response to them. Individuals have a dynamic bidirectional relationship with policy changes; they can both affect how they are implemented and be affected themselves by the implementation. For my study of the implementation of HB 40 policy change by abortion providers, the individuals concerned are staff of abortion-providing facilities who communicate Medicaid policy to patients, process Medicaid paperwork, receive training or train others in Medicaid billing, or otherwise interact with the abortion provider workflow. Characteristics of individuals in this case may include personal traits such as motivation, learning style, values, or intellectual ability. Their belief in their capability to appropriately handle billing and reimbursement, their knowledge and beliefs about billing and reimbursement, or their individual stage of change as they progress toward sustained and habitual use of the new Medicaid policy, are all incorporated in this domain.

The fifth CFIR domain is the implementation process itself. This may consist of interrelated sub-processes that operate simultaneously or at varying time points at multiple ecological levels or hierarchies within an organization. One of the essential activities of the implementation process is planning, defined in CFIR as the extent to which the scheme and tasks for implementing an intervention are developed in advance, and the quality of that planning. Engaging appropriate individuals in the implementation is another essential task. These individuals may be those who have formal or informal influence on the attitudes and beliefs of their colleagues, may be formally appointed with responsibility for the implementation within an organization, may dedicate themselves to supporting the implementation, or may be affiliated with an outside entity that formally influences or facilitates implementation decisions. The quality of executing the implementation according to plan depends on the fidelity to the plan, the intensity of implementation, the timeliness of task completion, and the degree

of engagement of implementation leaders in the process. The last essential component of the implementation process is seeking feedback about the process and evaluating the implementation progress.

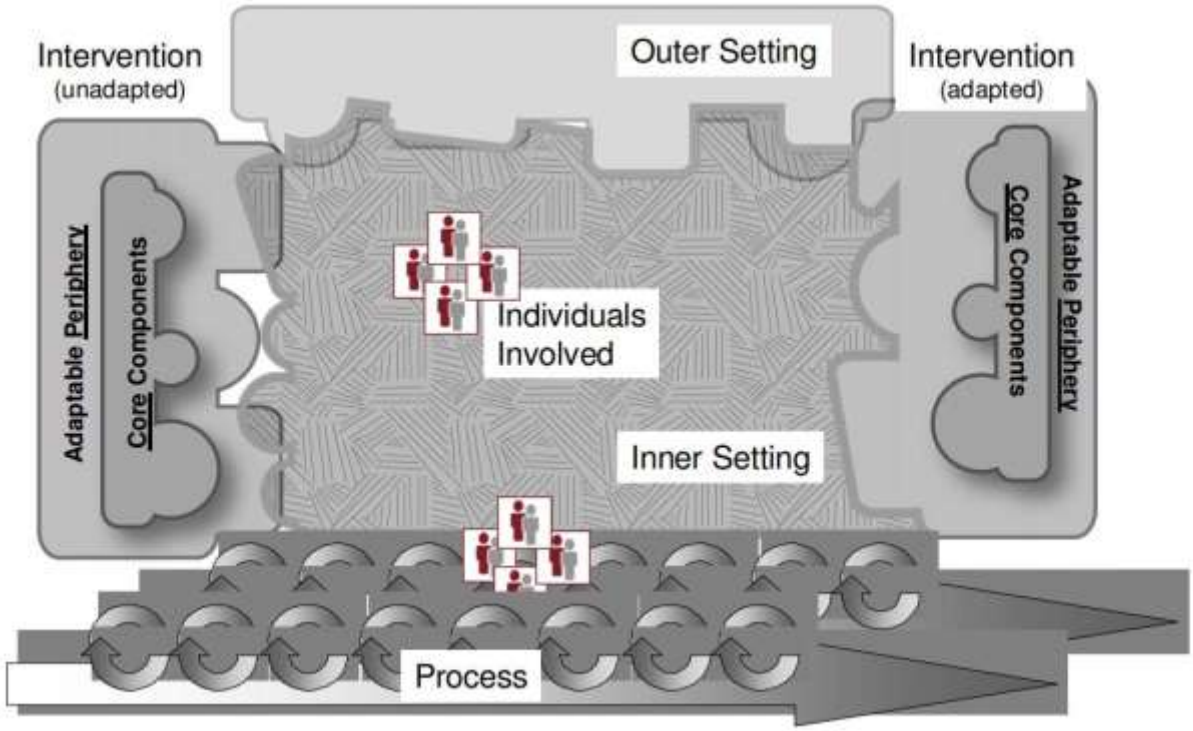
Figure 1 shows a graphic representation of these domains by Damschroder et al. (2009). On the left side of the figure there is a lack of fit between the intervention and the domains of the inner setting and individuals involved, representing how an intervention not yet adapted to a particular context can be resisted or resented by those affected by the intervention. The implementation process is portrayed at the bottom of the figure as multiple arrows, some overlapping, to signify that there are often multiple drivers of change, each with its own process, happening simultaneously. Through the implementation process, the adaptable periphery of the intervention and the inner setting have adapted and changed to fit each other. The outer setting is portrayed atop the inner setting with some overlap with the adaptable periphery of the intervention in order to show that changes in the outer setting can influence an implementation effort either by changing the inner setting, or by affecting the intervention itself.

B. Review of Related Literature for Chapters IV and V

1. How Medicaid participation and reimbursement have been studied

House Bill 40 is a bill that relates to Medicaid reimbursement. Not all health care providers participate in Medicaid. Although doing so enables providers to accept a wider range and number of patients, it also requires providers to fulfill all the participation requirements of Medicaid provider enrollment, which is not possible in all areas. In at least one state, the law prohibits any physician who performs abortions from being credentialed by Medicaid (Kimport & Rowland, 2017). In one study of states where Medicaid only reimbursed for abortion services under rare and specific circumstances, 21 of 22 identified clinical sites did not accept Medicaid (Kimport & Rowland, 2017). Staff at these facilities reported that getting

Figure 1. Major Domains of the CFIR



Medicaid reimbursement even for eligible cases was so difficult and so rare that they chose not to accept Medicaid. Qualitative research supports this finding: abortion providers report that in some states 97% of submitted claims for eligible cases receive funding, while in other states only 36% of eligible cases receive funding (Dennis & Blanchard, 2013). This points to something that must be considered when studying the implementation of HB 40 in Illinois: prior to HB 40, some abortion-providing facilities may have been similarly discouraged from accepting Medicaid. The process of becoming a Medicaid biller may take time, delaying an Illinois facility's ability to charge Medicaid for abortion services.

A number of barriers to Medicaid participation have been identified, some of which are shared by health care facilities of all types, others of which are specific to abortion-providing facilities. The primary barrier to accepting Medicaid for both abortion-providing facilities and others is low Medicaid reimbursement rates comparative to other payers (P. J. Cunningham & O'Malley, 2008; Dennis & Blanchard, 2013). Eighty-four percent of primary care physicians indicated that inadequate reimbursement was the reason they limited the Medicaid patient load (P. J. Cunningham & O'Malley, 2008). Staff at abortion facilities stated that reimbursement rates were so low that it did not cover the costs of care (Kimport & Rowland, 2017) and that they could not stay in business if they continued to bill Medicaid (Kacanek et al., 2010). At the time of this study, the Illinois Department of Healthcare and Family Services (HFS) reimbursed providers for one all-inclusive payment of $199.95 for surgical abortions (Illinois Department of Healthcare and Family Services, 2016, 2020c). For medication abortions, HFS reimbursed practitioners for up to $190.83 for all 3 visits ("the initial visit, the 2-day follow-up, and 2 week follow-up required under the Food and Drug Administration's protocol"), for any necessary tests performed such as an ultrasound or pregnancy test, and for the mifepristone and misoprostol drugs (Illinois Department of Healthcare and Family Services, 2016). If these reimbursement rates are perceived as too low by Illinois abortion-providing facilities, this may be a barrier to facility participation in Medicaid and thereby limit abortion access for Medicaid enrollees.

Not only may the Medicaid reimbursement rate be low for abortion procedures, but once staff time for billing and administrative issues related to Medicaid is accounted for, the value of the reimbursement may be lower still (Kacanek et al., 2010). After taking into account the cost of performing an abortion and paying staff and a billing company to get reimbursed, in one study of 25 providers, one abortion provider said they essentially broke even, having a net earning of just $1.22 (Kacanek et al., 2010). This objection brings up another frequently-cited barrier to facility participation in Medicaid: 70% of physicians consider paperwork to be a barrier to accepting Medicaid patients (P. J. Cunningham &

O'Malley, 2008). Surveys of physicians have found that they perceive a high administrative burden associated with Medicaid patients due to factors such as payment delays, rejection of claims due to paperwork errors, preauthorization requirements for services, and complex rules and regulations (Kusserow, 1992). A survey of private primary care physicians found that 40.5% thought taking too long to complete the necessary paperwork was the reason they or their colleagues chose not to participate in Medicaid, or limited their participation (Berman et al., 2002). Interviews with administrative staff at abortion-providing clinics demonstrate this burden: accepting public or private insurance required activities such as identifying available insurers, physician credentialing, and the ongoing work of billing, all of which took staff time and effort (Kimport & Rowland, 2017). Confusing and time-consuming paper-work and repeated rejection for reimbursement were challenges that led abortion-provider staff to feel that it was not worthwhile to even seek reimbursement (Dennis & Blanchard, 2013; Kimport & Rowland, 2017).

Medicaid is also commonly perceived to have slow reimbursement times (P. J. Cunningham & O'Malley, 2008; Dennis & Blanchard, 2013; Kimport & Rowland, 2017; Kusserow, 1992). Staff at abortion-providing facilities reported waiting 2 years or even giving up on ever receiving payment (Kacanek et al., 2010; Kimport & Rowland, 2017). Such experiences prompt some facilities—abortion or non-abortion providing alike--to stop participating in Medicaid (Kusserow, 1992).

Lastly, abortion-providing facility staff have reported reticence of state Medicaid staff to work with abortion providers. In some cases, state Medicaid staff were either unaware of or would not acknowledge state policies for reimbursement of abortion services (Kacanek et al., 2010). Abortion-providing facility staff reported routine denial of claims for no given reason or for minor errors(Dennis & Blanchard, 2013; Dennis et al., 2011). Unlike the other barriers to Medicaid participation or reimbursement, these are specific to abortion-providing facilities.

In addition to barriers to Medicaid reimbursement, facilitators of participation and positive experiences with Medicaid have been identified in the literature. Compared to paper-based claims, an electronic system was perceived as more user-friendly and less likely to allow billing errors that would require resubmitted claims (Dennis & Blanchard, 2013; Kusserow, 1992). Electronic systems potentially also simplify the processes of checking patient eligibility (Kusserow, 1992). The use of forms that are easy for both facility billing staff and Medicaid or Medicaid MCO staff to understand can facilitate reimbursement of claims (Kacanek et al., 2010; Kusserow, 1992). The individual characteristics and social networks of facility or Medicaid staff may also serve as facilitating factors. Kacanek and colleagues (2010) reported that staff longevity and increased assertiveness were key factors in getting reimbursement from Medicaid. As abortion clinic staff became more confident and knowledgeable about Medicaid processes, they were able to avoid mistakes and overcome Medicaid staff resistance or skepticism about reimbursing for abortion services. Frequent, regular contact between Medicaid staff and abortion-providing facility staff created relationships that helped streamline billing procedures and aided in troubleshooting (Dennis et al., 2011; Kacanek et al., 2010). In one study, a staff member from one abortion-providing facility described coordinating with Medicaid and the state Department of Health Services to expedite claim submission and processing (Kimport & Rowland, 2017). And just as Medicaid staff individual beliefs or lack of knowledge could serve as barriers to reimbursement of eligible claims, the reverse was also true. In some cases, Medicaid staff interpreted regulations broadly in order to allow more cases to be eligible for reimbursement (Kimport & Rowland, 2017). Medicaid staff that were willing and able to educate abortion facility staff on how to successfully bill without getting a claim rejected enabled successful reimbursement (Dennis et al., 2011; Kacanek et al., 2010), as did an intervention to educate Medicaid staff about circumstances in which they were obligated to reimburse for abortion services (Kacanek et al., 2010). With the expansion of which abortions in Illinois are eligible for state Medicaid reimbursement, frequency of contact with the Medicaid office may increase and thereby create

or improve working relationships. Based on these findings, I asked questions about staff's perception of their own knowledge, assertiveness and persistence in getting reimbursement from Medicaid, and their level and perceptions of contact with Medicaid staff.

2. Medicaid policies and procedures related to abortion services in Illinois

At the time of this study Medicaid reimbursement for abortion services in Illinois required multiple forms. To receive payment for induced surgical or medication abortions, a provider had to complete the Abortion Payment Application HFS 2390 and Health Insurance Claim Form HFS 2360 (hospitals attached a UB-04 form instead of HFS 2360) with appropriate Healthcare Common Procedure Coding System (HCPCS) and National Drug Code Directory (NDC) codes for the procedures and drugs used (Illinois Department of Healthcare and Family Services, 2016). When HB 40 went into effect, HFS issued a provider notice instructing providers to provide a statement on form HFS 2390 that stated the abortion was not for a pregnancy resulting from rape, incest, or threatening the pregnant person's health or life (Norwood, 2017), but there is no line or space on HFS 2390 for such a statement. To reflect the expanded eligibility criteria as of 1/1/2018, practitioner services must be billed with the modifier SE, and hospital services billed with the AH condition code, if the abortion is performed for reasons other than rape, incest, or health or life endangerment (Norwood, 2017). The reimbursement process is potentially made more confusing by the fact that as of 1/23/2020, the payment application forms and Medical Provider Handbooks still reflect the pre-1/1/2018 state of affairs, in which induced abortions are only reimbursed in certain circumstances.

Adding to this complexity of paperwork is the involvement of managed care organizations (MCOs) as 60% of Medicaid clients in Illinois are enrolled in an MCO (Illinois Department of Healthcare and Family Services, 2020a). In Illinois, the Medicaid Managed Care program expanded to statewide as of 1/1/2018 and is now called HealthChoice Illinois (Illinois Department of Healthcare and Family Services, 2020a). Also as of 1/1/2018, the contracts of various MCOs were not continued for Illinois Medicaid, such that

members of Humana, Illinois Health Connect, Aetna Better Health, Community Care Alliance, and Family Health Network were enrolled in the remaining MCOs (CountyCare, Meridian Health, IlliniCare Health, Harmony Health, BlueCross Community Health, NextLevel Health Partners, or Moline Healthcare) (Illinois Department of Healthcare and Family Services, 2020a). These MCO transitions may cause confusion among patients or billing staff. At the time of the study, reimbursement was further complicated for participants enrolled in HealthChoice Illinois: in cases when the pregnant person's life is endangered, to end pregnancies resulting from rape or incest, or if necessary to protect the pregnant person's health, the HealthChoice plan was to be billed (Norwood, 2017). If the abortion services were delivered for any other reason, they should be billed directly to HFS as a fee-for-service claim. Failure to comply with these reimbursement instructions resulted in denial of payment(Illinois Department of Healthcare and Family Services, 2016). As reported by Dennis and Blanchard (2012), the different claims procedures for each MCO complicate the process of applying for reimbursement, since each MCO has different contact people and eligibility criteria. Some MCOs require additional forms such as police reports for abortion in cases of rape, or a letter from a physician (Kacanek et al., 2010). Gestational age limits for abortion coverage may vary by MCO, further increasingly the complexity (Kacanek et al., 2010). In some states, MCOs will pay for services surrounding an abortion visit (such as the ultrasound or lab work) but not the abortion service itself (Kimport & Rowland, 2017). Moreover, in one study, personnel for MCOs were even less likely to know how to handle claims for abortion services than other Medicaid staff, and thereby even less likely to know how to troubleshoot the claims process (Kacanek et al., 2010). Abortion-providing facility staff reported that some MCOs reimburse for different non-abortion charges (such as lab work) differently, and that reimbursement rates were consistently lower from MCOs than non-managed care Medicaid (Dennis & Blanchard, 2013; Kimport & Rowland, 2017).

3. How changes to Medicaid policies have been studied

In 2018, 17 states provided funding for Medicaid enrollees who have abortions for medically necessary reasons (Guttmacher Institute, 2020b). Despite calls from advocacy groups for changes in state laws regulating Medicaid coverage of abortion (National Women's Law Center, 2017), there have been very few alterations to expand Medicaid abortion coverage in the last three decades. Since 2000, only Washington D.C. has expanded the reasons it will reimburse for abortion services, and that policy change was short lived. When Illinois changed its laws regarding public funding for abortion services in 2017 through HB 40, there were no other states that had experienced a similar, relatively recent policy change that abortion-providing facilities could look to for guidance in how to transition their payment structures.

Given the paucity of abortion-related literature on expanding Medicaid policies, I looked to other types of Medicaid policy changes for examples. One type of policy change that seemed well researched and relatively similar relates to what type of contraception could be reimbursed, and how that care could be delivered. For example, since 2012, most state Medicaid agencies have revised their policies to allow separate or additional payment for long-acting reversible contraception (LARC) provided immediately postpartum (American College of Obstetricians and Gynecologists, 2017). Medicaid policy change alone did not encourage widespread uptake of immediate postpartum LARC by facilities that could potentially provide it for a number of reasons, including logistical and access problems (Kroelinger et al., 2015; Okoroh et al., 2018).

C. Conceptual Framework for Chapter VI: Access to Family Planning Services

At its most basic, access to health care is generally understood to mean that health care is available (Gulliford et al., 2002). However, the mere existence of a health care resource does not mean that individuals can or will use it. There are a multitude of factors that may facilitate or prevent someone

from initiating the process of using health care resources. In 1993 the Institute of Medicine (IOM) defined access as the "timely use of personal health services to achieve the best possible outcome." Implied in this definition of access is the idea that health care resources are not only available used, but also that the use of resources is not too delayed, and the resources are helpful to users. This definition is a reminder that simple access to health services is not the desired end result; the purpose of gaining access to health care is to achieve or maintain health. To satisfy IOM's definition, health care resources should not only be available, they should be effective, they should be relevant to the population that needs them, and care should not be delayed.

The IOM's definition indicates what is needed for access, but does not explicitly provide details on how to achieve this access. Bertrand, Hardee, Magnani and Angle (1995) defined elements they believed influence access to family planning services which can be readily applied to access to abortion services. Bertrand et al. (1995) conceptualized access to family planning services as a multidimensional construct consisting of five elements: economic accessibility, geographic or physical accessibility, administrative accessibility, cognitive accessibility, and psychosocial accessibility. By delineating these elements, it may be possible to identify specific areas that prevent or delay potential clients of abortion facilities from accessing abortion services. I am not aware of an existing conceptual framework of access to abortion, so I instead will use this framework, originally intended for all family planning services. I have altered the definitions of each element of access to apply more directly to abortion.

1. Economic accessibility

Bertrand et al. (1995) defined economic accessibility as "the extent to which the costs of reaching service delivery or supply points and obtaining contraceptive services and supplies are within the economic means of a large majority of the target population." My definition of economic accessibility for abortion access is "the extent to which the costs of reaching service delivery or supply points and obtaining abortion services and supplies are within the economic means of a large majority of the target

population." Most US abortion patients pay a median of $500 out of pocket for their abortion (Jerman & Jones, 2014). Since 69% of abortions in the US are obtained by people with household incomes below 200% of the federal poverty level (Jones & Kooistra, 2011), this cost can be a significant barrier. The total out-of-pocket costs were equivalent to more than one third of monthly personal income for 56% of abortion patients (Roberts et al., 2014) in 2008-2010. Jones et al. (2013) found that 52% of abortion patients reported difficulty paying abortion-related expenses, and that paying for the abortion and ancillary costs such as travel-related costs caused a substantial minority to delay or be unable to pay bills or utilities or buy food. There is also qualitative research that echoes these findings, with participants delaying paying rent or bills, or going without food or other needs in order to pay for the abortion services (Dennis et al., 2014, 2015; Margo et al., 2016; Ostrach & Cheyney, 2014). These efforts and strategies tend to delay or prevent women from getting abortions and induce both short and long-term financial instability (Dennis et al., 2014; Henshaw et al., 2009).

Financial burdens and difficulty obtaining insurance are frequently cited by women in the US as reasons for delay in obtaining an abortion (Bessett et al., 2011; Dennis et al., 2015; Drey et al., 2006; Finer et al., 2006; Foster et al., 2008; Foster & Kimport, 2013; French et al., 2016; Henshaw & Wallisch, 1984; Janiak et al., 2014; Jones & Jerman, 2017b; Kiley et al., 2010; Ostrach & Cheyney, 2014; Roberts et al., 2014; Upadhyay et al., 2014; White et al., 2016). Lack of funding may not just delay abortion, but prevent it entirely. Cook et al. (1999) looked at the effect of public abortion funding on the abortion rate, and found an increase in pregnancies carried to term when no funding was available. Other studies support this finding: Trussell et al. (1980) estimated that 18-23% of Medicaid-eligible women in Ohio or Georgia carried their unwanted pregnancies to term due to Medicaid restrictions on abortion coverage in 1978-79. Scheier and Tell (1980) calculated that 20% of Medicaid-eligible women in Chicago carried their pregnancies to term due to Medicaid restrictions in 1978. Rubin et al. (1979) estimated that the proportion was as high as 35% in Texas in 1978. Surveys conducted in Louisiana in 2015-17 estimated that

if Medicaid covered abortion services in all circumstances, 29% (95% CI: 19-41) of Medicaid-eligible pregnant women would have had an abortion (Roberts et al., 2019). The people most effected by Medicaid restrictions are teenagers, black, have lower educational attainment, and Medicaid-eligible (Blank et al., 1994; Coles et al., 2010; Cook et al., 1999; Henshaw et al., 2009). Interestingly, Medicaid restrictions are also associated with interstate travel for abortion (Blank et al., 1994), raising the issue of travel to providers.

2. Geographic or physical accessibility

Geographic or physical accessibility is "the extent to which family planning service delivery and supply points are located so that a large proportion of the target population can reach them with an acceptable level of effort" (Bertrand et al., 1995). In 2008, 17% of US abortion patients travelled 50 miles or more to have an abortion (Jones & Jerman, 2013). In 2014, half of all women aged 15 to 44 years old in the US lived within 10.79 miles of an abortion clinic (Bearak et al., 2017). In Illinois in 2014, the median distance from an abortion clinic was 10.41 miles. As in other states, the distance to the nearest clinic in Illinois varied by county, with the shortest distances in the north-eastern metropolitan area of the state and the farthest distances (90-179 miles) in the southern tip of Illinois (Bearak et al., 2017).

Previous research has demonstrated that geographic or physical accessibility of abortion providers affects access to abortion services. Abortion patients who live farther from abortion-providing facilities are more likely than those living within 25 miles to wait more than two weeks for an abortion appointment (Jones & Jerman, 2016). Second trimester abortion patients have significantly higher odds of traveling longer distances than patients in the first trimester (Johns et al., 2017; Joyce & Kaestner, 2001; Kiley et al., 2010; Upadhyay et al., 2014) and are significantly more likely to report traveling long distances (Drey et al., 2006; Reisinger et al., 2016). As distances to providers increase, the likelihood of getting an abortion decreases significantly (S. Cunningham et al., 2017; Grossman et al., 2017; Jewell & Brown, 2000; Quast et al., 2017; Shelton et al., 1976; Upadhyay et al., 2014).

Travel to an abortion provider is in and of itself potentially burdensome, and also carries with it additional costs, such as for gas, lost wages, overnight stays or childcare (Margo et al., 2016; White et al., 2016), which can compound the economic burden of paying for an abortion. Abortion patients surveyed from 30 clinical sites across the US in 2008-2010 reported paying up to $2,200 for out-of-pocket travel costs (Roberts et al., 2014).

Increased distance from abortion providers is associated with negative consequences in and of itself. Upadhyay and colleagues (2015) found that greater distance traveled to abortion services was associated with increased likelihood of seeking follow-up care at a local emergency department instead of returning to the provider, which drives up costs and interrupts continuity of care. Further, abortion providers are better equipped to evaluate and treat post-abortion patients, being less likely to prescribe repeat aspiration or antibiotics (Beckman et al., 2002).

3. Administrative accessibility

Bertrand et al. (1995) define administrative accessibility as "the extent to which unnecessary rules and regulations that inhibit contraceptive choice and use are eliminated." Judging rules or regulations as "unnecessary" is not helpful to communicating findings, since interested parties may see a use for existing rules or regulations. Instead, I define this category as "the extent to which rules and regulations that inhibit abortion choice and use are eliminated."

Restricted clinic hours or limitations on when abortion services are conducted are examples of administrative barriers. Lack of appointment availability may prevent pregnant women from getting an abortion when they choose. Wait times for appointments affect sizable proportions of patients in other countries (Doran & Nancarrow, 2015). Research conducted in the United States in the last two decades has demonstrated relatively stable mean intervals between a patient's first contact with a clinic and the procedure. A national survey of abortion providers conducted in 1993 found that on average, 86% of

facilities could schedule an abortion within 7 days of someone contacting them, and that this interval was shorter for abortion clinics, which provide the majority of abortions in the United States (Henshaw, 1995). As of 2014, the mean interval between first trying to obtain an abortion and the abortion procure was 7.6 days, and 76% of patients made an appointment within 7 days (Jones & Jerman, 2016).

In 1993, 13% of abortion patients who were delayed in receiving an abortion cited a full clinic schedule as the cause (Henshaw & Wallisch, 1984). A study conducted in 2003-4 found a similar effect on delay: 18% of abortion patients who would have preferred to have had their abortion earlier were delayed because they couldn't get an earlier appointment (Finer et al., 2006). The extent to which appointment availability affects accessibility may vary by state, since a study of Nebraskan abortion patients in 2014-5 found that 40% of those who would have preferred to have their abortion earlier were delayed because they couldn't get an earlier appointment (French et al., 2016). State regulation of abortion also affects wait times. In Texas, enforcement of a bill (HB 2) that required abortion providers to have admitting privileges at a hospital within 30 miles led to an increase in wait times from 5 days to 15-20 days, which coincided with a 27% increase in second-trimester abortions in Texas (Baum et al., 2017). Further, personal characteristics and circumstances may affect delays due to appointment unavailability. Married women compared to unmarried, those with fewer than two children compared to those with two or more, higher income women compared to lower, women who paid out of pocket compared to those who relied on financial assistance, and women who lived closer to the abortion facility compared with those living 50 or more miles from the facility had fewer days between contacting a clinic and having an abortion (Jones & Jerman, 2016).

Not all of those eligible for Medicaid are aware of their eligibility, or aware of in which states Medicaid covers abortion (Cockrill & Weitz, 2010). Abortion patients may find the Medicaid application process challenging to the extent that it constitutes a barrier to access (Ostrach & Cheyney, 2014). In one study, some abortion patients experienced so many obstacles during the Medicaid application process

that they waited several weeks to several months before being able to have the procedure (Ostrach & Cheyney, 2014). Others wait for their Medicaid coverage to become active before having the abortion (Finer et al., 2006). However, it is possible that Medicaid eligibility delays are less common in Illinois, since it is one of the states that authorizes qualified health care entities to extend coverage to pregnant women temporarily until a full eligibility determination is made (Illinois Department of Healthcare and Family Services, 2020b). Still, confusion about coverage or difficulties with Medicaid may inhibit women from seeking or getting the abortion care they want. The potential impact of difficulties with Medicaid eligibility may be found to be greater after 1/1/2018, when HB 40 went into effect. Before HB 40, there was no point in waiting for Medicaid application or coverage checks, since it would not cover abortion services in most cases. After HB 40, pregnant women may face the same delays due to Medicaid application as those in other states where Medicaid covers abortion services under all circumstances.

Private insurance is another potential area in which administrative accessibility may apply. Not all insurance plans cover abortion: as of 4/2018, 11 states restrict abortion coverage in state-regulated private plans and 15 additional states restrict abortion coverage in Affordable Care Act Marketplace plans (Rosenzweig et al., 2018). Forty-six percent of abortion patients with private insurance did not use it because abortion services were not covered by their plan (Jones et al., 2013). Even when a plan covers abortion, abortion patients may be unsure if it is covered or assume it does not (Cockrill & Weitz, 2010; Jones et al., 2013; Van Bebber et al., 2006). Additionally, not all insurance plans are accepted by all abortion-providing facilities. This combination of factors, along with psychosocial concerns such as fear of discovery (Cockrill & Weitz, 2010), meant that in 2008, 63% of women with private health insurance paid out of pocket for abortion care (Jones et al., 2010). In these cases, lack of administrative accessibility creates a financial obstacle for patients.

The other aspect of how state regulation of abortion may influence aspects of administrative accessibility pertains to services for minors. In Illinois as of 8/15/2013, health care providers are required

to notify an adult family member or legal guardian 48 hours before performing an abortion for someone under age 18 (Carter, 2013). Minors may go to court and obtain a judicial waiver of the notice requirement(Carter, 2013). While parental involvement laws have not demonstrated a consistent impact on a state's abortion rate among minors (Bitler & Zavodny, 2001; Blank et al., 1994; Kane & Staiger, 1996), they are significantly associated with higher gestational age at termination for minors (Bitler & Zavodny, 2001; Ellertson, 1997; Joyce & Kaestner, 2001) and travel out of state for abortion (Ellertson, 1997; Joyce & Kaestner, 2001).

Administrative accessibility may also be influenced by rules and regulations in other states. The states bordering Illinois all have parental notification or consent laws, just as Illinois does, and four of them have mandatory waiting periods of 18 to 72 hours (Guttmacher Institute, 2020a). Pregnant women from these states may travel to Illinois to avoid the waiting periods there (Pearson, 2016). For these patients, administrative access is entangled with geographic access.

In the US, 43 states prohibit abortions after a certain point in pregnancy, most commonly fetal viability or 20 weeks post-fertilization (Guttmacher Institute, 2020a). Facilities or physicians may also have gestational limit thresholds of their own (Upadhyay et al., 2014). In 2009, an estimated 4000 women were unable to obtain abortions because they presented for care past facilities' gestational age limits (Upadhyay et al., 2014). This is another area in which multiple aspects of access coincide. Presenting at a facility past its gestational limit and therefore being turned down for care is more common among pregnant women who have difficulty with travel and procedure costs, do not recognize the pregnancy early, have insurance problems, don't know where to find abortion care, or have difficulty getting to an abortion provider (Upadhyay et al., 2014).

4. Cognitive accessibility

Bertrand et al. (1995) define cognitive accessibility as "the extent to which potential clients are aware of the locations of service or supply points and of the services available at these locations." Difficulty finding an abortion provider is frequently reported (Drey et al., 2006). Surveys of patients who had not had an abortion and were waiting at primary care or obstetrics and gynecology clinics in major US cities found that 40% knew somewhere they could go if they needed an abortion (Lara et al., 2015). Abortion patients have reported that searches for abortion services, particularly using the internet, were confusing (Margo et al., 2016; White et al., 2016). Health and social services professionals in the US may lack skills or information needed to refer pregnant women to abortion services, and up to one-third reported being unwilling to refer patients to abortion services (Zurek et al., 2015). This difficulty in finding abortion services may delay care: Drey and colleagues (2006) found that among abortion patients in California, 44.9% of second trimester patients reported difficulty finding an abortion provider, compared with 25.7% of first trimester patients.

Patients may be further delayed by seeking care at locations that do not provide the services they seek. Abortion patients' first attempt to seek advice or care related to their pregnancy is sometimes with medical professionals or crisis pregnancy center staff who do not offer or refer patients to abortion services (French et al., 2016; Margo et al., 2016). A study of abortion patients in Nebraska found that only 29.8% of patients who discussed abortion with a clinician received a referral to a clinic that actually provided abortions (French et al., 2016). One study found that the single logistical factor that caused the greatest delay in getting an abortion was initial referral elsewhere (Drey et al., 2006). Finer and colleagues (2006) similarly found that those who went to another clinic or doctor's office before going to the facility where they got an abortion took twice as long to obtain an abortion. Women's reasons for not having the abortion at the first location included: the first location was too expensive or they did not have insurance

when the visited, abortions were not performed there, they were not able to get an appointment, or they were too far along in their pregnancy (Finer et al., 2006).

Lack of awareness about state or federal laws may also affect access to abortion. Some abortion patients seek abortions out of state because they assumed abortion was illegal in their state (White et al., 2016). Women in a state that had recently changed abortion regulations were largely (67%) unaware of the new law (Sanders et al., 2016). Surveys of minors and adults have found that the majority have no awareness of abortion-related laws prior to seeking an abortion (Blum et al., 1987; Lara et al., 2015). Focus groups with teenagers conducted throughout the US found that many though abortion was illegal, or only legal in a few states (Stone & Waszak, 1992), while in interviews with adults, few abortion or primary care patients knew about state-level regulations on abortion (Cockrill & Weitz, 2010; Lara et al., 2015). Women who had personally experienced an abortion-regulating law such as a mandated waiting period or parental consent laws were aware of them, but others were not (Cockrill & Weitz, 2010). Personal experience was also important for understanding whether abortion was legal in the United States: until one interview participant had sought an abortion, she was not aware of whether it was legal (Cockrill & Weitz, 2010).

5. Psychosocial accessibility

Bertrand et al. (1995) define psychosocial accessibility as "the extent to which potential clients are unconstrained by psychological, attitudinal or social factors…in seeking out family planning services." Degree of decisional certainty or conflict about having an abortion is significantly associated with choosing to have one (Roberts et al., 2016), and some people simply take longer to decide to have an abortion (Finer et al., 2006). Additionally, abortion stigma, fear, and other attitudes affect people's likeliness and timeliness of accessing abortion services. Surveys of abortion patients have found that difficulty deciding and fear were two of the most common factors that caused a delay in getting an abortion (Drey et al., 2006; Janiak et al., 2014; Kiley et al., 2010).

D. Review of Related Literature for Chapter VI

1. Why delayed care matters

Abortions are time-sensitive procedures. With increasing gestational age, the invasiveness and sedation depth required for an abortion procedure also increases (Committee on Reproductive Health Services of the National Academies of Sciences, 2018). The mortality rate in abortions within the first 8 weeks of pregnancy is 0.1 per 100,000, but this rate rises 38% with each week of gestational age, culminating in a mortality rate of 8.9 per 100,000 abortions for those that take place after 20 weeks gestation (Bartlett et al., 2004). The risk of abortion morbidity increases continually with increasing gestational age as well (Upadhyay et al., 2015). The cost of an abortion also increases as the gestational age increases, from a median of $495 for a 10 week surgical abortion to $1,350 for a 20 week gestation (Jerman & Jones, 2014). Additionally, as gestational age increases, it becomes increasingly harder to find a physician willing and able to provide an abortion. The number of facilities that offer abortion services declines after 8 weeks' gestation, to the extent that only 72% of abortion providers perform abortions at 12 weeks, and only 16% at 24 weeks (Jerman & Jones, 2014). Delays in accessing abortion may also mean that patients are prohibited from choosing the abortion method of their choice, as medication abortion is typically provided only through the first 9 weeks of pregnancy, and delays sometimes mean that patients have to wait for an abortion until after that time is passed (Bessett et al., 2011; Jones & Jerman, 2016). There is also an emotional strain of continuing a pregnancy longer than intended (Adler et al., 1990). All told, earlier care is preferred by the majority of abortion-seeking women. Out of 1,209 abortion patients sampled from 11 abortion providers in 2003-4, 58% would have preferred to have the abortion earlier than they did (Finer et al., 2006). Ninety-one percent of abortion patients in their second trimester reported they would have preferred to have the abortion earlier (Finer et al., 2006).

Delay is also inequitably distributed. Non-white women and women younger than 20 years of age have higher relative risks of abortion related mortality than white women or women 20 years of age or

older; Bartlett et al. (2004) estimated that 20%-30% of this disparity is due to later gestational ages at termination. If delayed abortion patients accessed abortion services even one week earlier, morbidity and mortality would diminish, as might the racial and age-related disparities in abortion-related mortality.

2. How other researchers have studied and operationalized delayed care

Delays in abortion service provision have primarily been quantitatively studied using two types of outcomes: abortion patients' self-report that they were delayed, or gestational age at termination. Similarly, factors that delayed accessing abortion care, or made it more difficult, are commonly assessed either through self-report or by statistical association between delay and a routinely collected variable such as income.

The strength of using self-reported delays and delaying factors is that this is a reasonably valid measure of a patient not being able to obtain an abortion as soon as she would have liked. A limitation is that it relies on surveying or interviewing abortion patients. The other commonly used method to measure delays, gestational age, is routinely collected by abortion providers and reported on Induced Termination of Pregnancy (ITOP) reports to state health departments, so it requires less effort to collect and does not add a burden to abortion patients. The drawback to using gestational age as an indicator of delay is that terminations later in pregnancy are not necessarily due to factors that can or should be modified. Some pregnant women take more time to decide to have an abortion (Finer et al., 2006). Others may have abortions later in their pregnancies because something changes in their life or something is discovered about the pregnancy or fetus (Finer et al., 2006). A higher gestational age is not necessarily evidence of a delay. Furthermore, it's plausible that expanding access to abortion services could actually increase average gestational ages at termination for certain groups. For example, if financial constraints were removed that would previously have prevented pregnant women from affording second trimester abortions (which are more expensive than first trimester abortions), the number of second trimester abortions could increase.

3. How other researchers have studied and operationalized prevented care

In studies of delayed care, finding the relevant population is simple: they are abortion patients. Finding those who were entirely prevented from accessing legal abortion services is more difficult. If someone is prevented from obtaining a legal abortion, they may continue the pregnancy (which could result in a miscarriage or birth) or attempt an illegal abortion. Researchers have estimated numbers and characteristics of those potentially forced to continue pregnancies by comparing proportions of pregnancies that end in abortion compared to live birth or fetal death (Cook et al., 1999; Trussell et al., 1980), or evaluating changes in rates of unintended pregnancies carried to term. To study illegal abortion incidence, researchers may review emergency department admissions for increases in complications from illegal abortions (Cates Jr et al., 1979), track internet searches for illegal abortion methods (Reis & Brownstein, 2010), or ask reproductive-aged women whether they or anyone they knew had attempted to self-induce an abortion (Jerman et al., 2018).

The Turnaway study interviewed women who sought abortions but were not able to get them because they were past the provider's gestational limit (Upadhyay et al., 2014). This method identifies those who definitively sought an abortion and were denied care, although it still does not take into account those who were prevented from even getting to an abortion provider.

III. METHODS

A. Thematic Analysis of Abortion-Providing Facilities Experiences with Payment Change and Illinois Medicaid

The objective of this study is to understand the perspectives of individuals who work at Illinois abortion-providing facilities with Illinois Medicaid and changes to facilities' payment systems, policies, and procedures after HB 40. A single investigator (Cameron Estrich) conducted all design, data collection, and analysis. The University of Illinois at Chicago Institutional Review Board determined this research to be exempt from review (Appendix A).

1. Respondent identification and recruitment

The authors of CFIR advise that the framework's constructs be based in the perceptions of the individuals and their organization(s), not the judgments of external researchers or experts, since the former will affect implementation effectiveness (Damschroder et al., 2009). Therefore, evaluations that elicit the perceptions of individuals are preferred, hence the choice to interview key informants at abortion-providing facilities. Abortion providing facilities eligible for inclusion in the study were those that legally provided at least one abortion in both 2017 and 2018 in the state of Illinois. Abortion-providing facilities in Illinois were identified using searches for the phone number or website of abortion providers in Illinois, as well as via online resources (Abortion Clinics Online; National Abortion Federation, 2018; Safe Place Project, 2018). This search identified 29 facilities that provided legal abortion services operating in Illinois as of 3/2018. An interview respondent identified one additional facility.

Letters introducing the study's aims and design were mailed to all abortion-providing facilities in Illinois, followed two weeks later with a phone call to each facility to identify a representative of the facility and invite them to participate in an interview. Staff at facilities were asked to direct the interviewer to the person best able to answer questions about billing and payment procedures for

abortions at their facility. Prospective respondents needed to be 18 years or older, English-speaking, and verify that they had experience with billing and/or reimbursement at an abortion-providing facility in Illinois. The public website of each facility was used to determine whether the facility was independent or affiliated with other abortion-providing sites or a larger organization. Facility affiliation was verified by facility staff. Only the management team or lead administrators at each affiliated group of facilities was contacted, to avoid repeatedly contacting the same leadership. Twenty of the 29 identified facilities operated under the same management as at least one other facility. In cases where billing and reimbursement decisions and procedures were the same across affiliated facilities, only one interview was conducted, unless the key informant from that facility recommended interviews with additional staff members. Two facilities (one hospital, one affiliated clinic group) were unreachable after multiple contact attempts. Eligible key informants at the twelve remaining facilities or affiliated groups of facilities were identified. At ten facilities, staff indicated that a single key informant was eligible and sufficiently knowledgeable. At two facilities, respondents recommended additional interviews with staff who worked in a different domain.

2. Key Informant Interviews

One interviewer conducted all telephone interviews between December 2018 and September 2019. Semi-structured interviewing was chosen as the method of data collection to ensure consistency across interviews, while also allowing new ideas and themes to emerge organically during the interview. The interview guide (Appendix B) was created based on CFIR constructs and previous research into Medicaid policy changes and abortion reimbursement. All respondents gave verbal informed consent before the start of the interview, and were informed they did not have to answer questions and could stop the interview at any time. Staff of ten facilities consented to an audio-recording of the interview, and these recordings were transcribed verbatim. Two facilities agreed to be interviewed but declined to be audio-recorded; in these cases the interviewer took detailed notes. Interviews took between 17:35 and

54:30 minutes (average 32:28). In all, 14 abortion-providing facility key informants representing 25 facilities or groups of facilities were interviewed.

3. Thematic Analysis

Analysis of the qualitative data took place through a process of thematic analysis (Braun & Clarke, 2006) that involved careful reading of transcripts or notes, labeling passages of text with codes that reflected key concepts, development of themes based on code/text patterns and relationships, and developing final summaries and interpretations of the data. Analysis was conducted using Dedoose®, a qualitative data analysis software program. The initial set of codes was generated based on the study's research questions, and additional codes were developed that reflected new topics or nuances grounded in the data. Once satisfied that the code list was suitably complete, sets of related codes were used to develop themes. These themes were refined to ensure they were coherent, reflected interview content, and had internal homogeneity and external heterogeneity (Braun & Clarke, 2006). In a process known as member checking, result were shared with respondents for their input on the findings and interpretations.

B. Quantitative Analysis of Abortion Patients' Characteristics Before and After Financial Coverage of Abortion Services

The objective of this portion of the study is to describe patient characteristics at a single abortion-providing facility in Illinois before and after abortion services were financially covered for enrollees in Illinois Medicaid. This study was reviewed and approved by the University of Illinois at Chicago Institutional Review Board (Appendix C).

1. Data description

The studied population is restricted to individuals who had an abortion at this facility between 1/1/2016 and 12/31/2018. The facility was chosen because it was the only abortion-providing facility in

Illinois that was willing to provide data when contacted in September 2017. The time period of 2016 to 2018 was chosen because the record retention requirement for providers in Illinois is three years, and this three year span includes two years before and one year after HB 40 went into effect.

The facility provided de-identified data with the following variables: an arbitrary patient number, date of service, patient age, procedure code, amount charged, estimated gestational age at termination, patient zip code, patient marital status, patient race, and patients' numbers of living children, dead children, miscarriages and previous abortions.

2. Variables of interest

The primary outcome was gestational age at termination. Gestational age was measured via ultrasound and reported in weeks. Estimated gestational age was categorized into first and second trimester. Patient age was categorized to be consistent with national surveys of abortion patients (Jerman et al., 2016). Race was measured as White, Black, Asian, American Indian, or Other; American Indian patients were included in the Other category due to the small number of patients (n=16) and their similar distributions of estimated gestational age. Number of previous abortions was categorized as any prior personal experience of abortion compared to none, while number of prior births was categorized as 0, 1, or 2 or more, following Jerman et al. (2016).

Patient zip code was used to determine patient state of residence. The one-way driving travel distance and travel time between a patient's residential zip code and the abortion facility was calculated using Stata's georoute command (Weber & Péclat, 2017). Patients with a zip code located more than 400 miles away from the facility (n=59) were treated as having a missing zip code because the zip code they provided was potentially that of a permanent address rather than where they currently lived (following White, Turan, & Grossman, 2017 and Fuentes & Jerman, 2019).

3. Statistical analysis

The univariate distributions of each variable were examined. For continuous variables this included evaluating skewness, kurtosis, Komogorov-Smirnov tests for normality, and examining the minimum, maximum, and quintiles. Of note, gestational age was not normally distributed (Kolmogorov-Smirnov test p-value <0.01, right skewed), so linear regression with this variable as an untransformed outcome was not appropriate. There were no unlikely outliers in the continuous variables of age, gestational age, or miles traveled. For the descriptive statistics of the sample, only the first visit per patient was included. Sensitivity analyses without duplicate visits were conducted.

Difference-in-difference estimation was used to estimate the effect of financial coverage on trimester of abortion. In a difference-in-differences design, the difference in outcome in the intervention group before and after an intervention is calculated, as is the difference in outcome in a control group at the same time points (but with no intervention). The average effect of the intervention is then estimated by taking the difference between the differences (Bärnighausen et al., 2017). In this case, the intervention was financial coverage for Illinois abortion patients, and the outcome was proportion of second trimester abortions. The effect of financial coverage was estimated by subtracting changes in proportion of second trimester abortions before and after HB 40 among Missouri patients from changes in the proportion of second trimester abortions before and after HB 40 among Illinois patients seeking services at the same clinic. This design controls for time trends that are shared by both groups that are unrelated to the intervention and for differences between the two groups. The validity of the difference-in-differences estimate relies on certain assumptions: first, that the groups experienced common time effects, second, that there were no composition changes within the group, third, that the intervention was unrelated to the baseline outcomes, and fourth, that the trends of the two groups were similar before the intervention. The less these assumptions are violated, the more the control group can be considered a counterfactual for the intervention group, and the closer the effect can be considered to the true effect

caused by the intervention. Although these assumptions are considered untestable and unprovable, examining them can lend confidence to the estimate. In this study's case, the first assumption likely holds, given that patients come from neighboring states within the same country. The second assumption was tested by comparing the group demographics before and after HB 40. For the third assumption, there was no indication in the discussion around HB 40 related to gestational age at termination; there is no reason to think that the proportion of second trimester abortions in Illinois in 2016-17 is related to the passage of HB 40. To test the fourth assumption, that of parallel paths, Kim et al. (2004)'s comparability test was used to test the equality of the segmented line regression functions for the two groups (in this case, Missouri patients and Illinois patients) in Joinpoint Regression Program 4.7.0.0 (SEER*Stat, MD). Mixed-effect logistic regression was conducted in Stata 13.1 (College Station, TX) order to account for the non-independence of multiple abortions by the same patient using random effects specifications.

Joinpoint regression models were used to estimate temporal trends in proportions of second trimester abortion and identify if any slope changes occurred, and if so, at what time point(s). The number and locations of these changes in slope, also known as joinpoints, are determined by the data, for a minimum of 0 joinpoints and a maximum of 5 joinpoints. These models were constructed and tested in Joinpoint Regression Program 4.7.0.0. Statistical significance was set at 0.05.

IV. ABORTION PROVIDER REPORTED BARRIERS AND FACILITATORS TO IMPLEMENTING CHANGES TO BILLING AND PAYMENT ASSOCIATED WITH MEDICAID ABORTION POLICY CHANGE

A. Introduction

Abortions, like many other health care procedures, are time-sensitive. The financial burden of paying out of pocket for an abortion can be a significant barrier to accessing timely care, either by delaying it (Bessett et al., 2011; Dennis et al., 2015; Drey et al., 2006; Finer et al., 2006; Foster et al., 2008; Foster & Kimport, 2013; French et al., 2016; Henshaw & Wallisch, 1984; Janiak et al., 2014; Jones & Jerman, 2017b; Kiley et al., 2010; Ostrach & Matthews, 2015; Roberts et al., 2014; Upadhyay et al., 2014; White et al., 2016) or preventing it entirely (Henshaw et al., 2009). These delays lead to terminations at higher gestational ages which are associated with higher risks of morbidity and mortality (Bartlett et al., 2004; Upadhyay et al., 2015) and emotional strain from continuing a pregnancy longer than intended (Adler et al., 1990). The removal of prohibitions preventing state-Medicaid programs from covering abortion services is one strategy to minimize the financial burden on abortion patients.

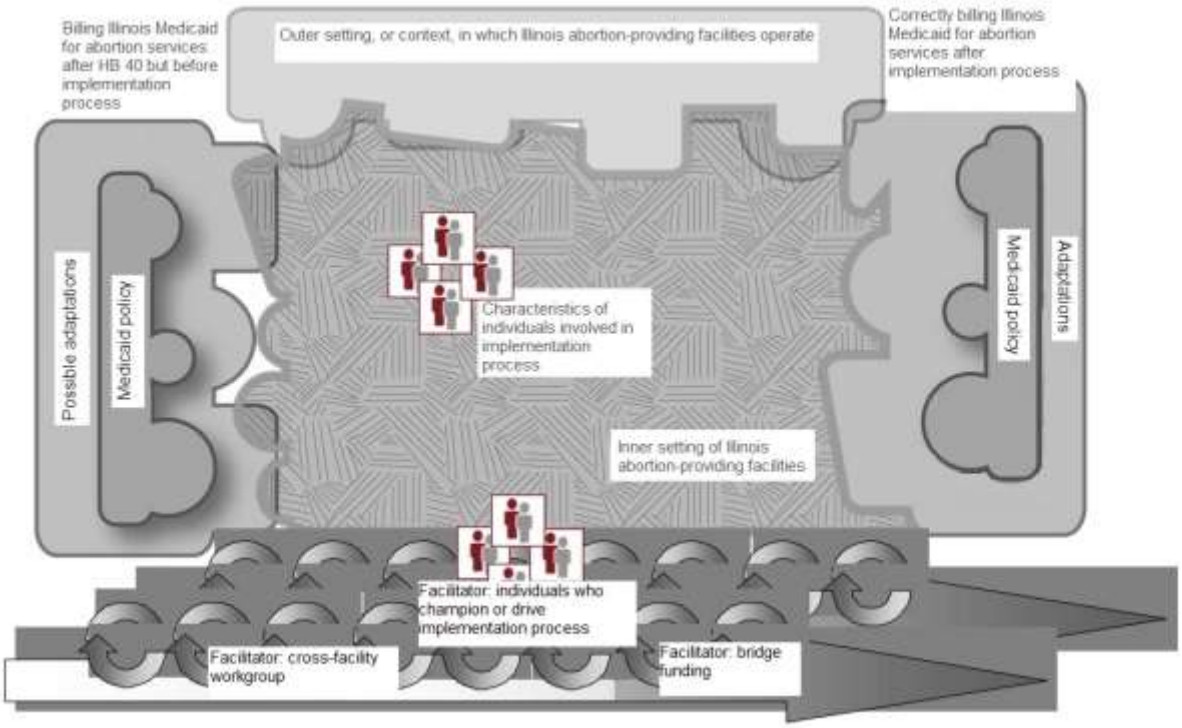
Despite the health benefits of covering abortion care, the majority of states in the US prevent Medicaid abortion coverage except under extreme circumstances (Guttmacher Institute, 2020b), with very few alterations in the last three decades. Since 2000, only Washington D.C. and Illinois have expanded the criteria for Medicaid-reimbursed abortion services, and Washington D.C.'s policy change was short-lived (Gresko, 2011). When Illinois removed restrictions on Medicaid coverage for abortion services through HB 40 (Illinois General Assembly, 2017), there were no other states that had experienced a similar, relatively recent policy change that abortion-providing facilities could look to for guidance in how to transition their payment structures. The passage of HB 40 represents a rare opportunity to study a state's expansion rather than restriction of public insurance coverage for abortion. It is important to note that in order for a Medicaid policy change to have the desired effect of increased

access to services it must be paired with Medicaid participation and billing by health care providers and facilities. We undertook a qualitative exploration of abortion providers' experiences of the Medicaid reimbursement policy change, and its implementation at the clinic or site level.

When HB 40 went into effect and Illinois Medicaid removed its restrictions on reimbursement policies for abortion, facilities faced different implementation challenges depending on their current relationship with Medicaid. For abortion-providing facilities that were already registered Medicaid providers, implementation consisted of learning how to bill Medicaid for abortion services under the new policy, altering facility payment systems or policies in order to correctly bill Medicaid for abortion services, and training staff in these changes. Facilities that had not previously accepted Medicaid payment had to apply to become Medicaid providers, develop and implement new payment systems and policies, and hire or train staff.

We used the Consolidated Framework for Implementation Research (CFIR) to guide our description of implementation by abortion-providing facilities. The CFIR is a typology of constructs that commonly affect the speed or success of implementation of innovations or interventions in healthcare settings (Damschroder et al., 2009). As applied to this research, these domains are: the inner setting (the structure and culture of abortion-providing facilities); characteristics of the new Medicaid policy; the outer setting (the economic, political, and social context in which facilities operate, including the needs of patients and networking or collaborating with other organizations); characteristics of individuals involved in the implementation process (e.g., their beliefs about Medicaid policy or their own capabilities to achieve implementation goals); and, the process domain, which consists of activities that lead to effective implementation (Figure 2).

Figure 2. CFIR domains as applied to this implementation process



B. Methods

We identified twenty-nine abortion-providing facilities operating in Illinois as of 3/2018 using Internet searches (Abortion Clinics Online; National Abortion Federation, 2018; Safe Place Project, 2018); one additional facility was identified by interview respondents. We contacted facilities first with a letter introducing the study's aims and design, then contacted each facility (or in the case of affiliated groups of clinics that share management, the administrative office) two weeks later with a phone call inviting participation. We asked each facility to nominate one or more staff members who were eighteen years or older and English-speaking, and who were best able to answer questions about billing and payment

procedures and changes at their facility. Two facilities (one hospital, one group of affiliated clinics) did not respond. All the other facilities agreed to participate and nominated one to two staff members to be interviewed. All affiliated groups of facilities indicated that those nominated could speak for the group. These key informants were an even mix of administrators, physicians, and administrative staff, all with at least one year of experience at their position and most (85.7%) with far more.

We conducted telephone interviews between December 2018 and September 2019 with fourteen respondents representing twenty-five abortion-providing facilities. Two facilities were not billing Medicaid or applying to become Medicaid providers, and since they were not undergoing an implementation process they are not included in these results.

We organized the interviews around the five domains of the CFIR, but used a semi-structured format to enable respondents to raise issues we might not have anticipated. Interviews lasted between 17:35-54:30 minutes (average 32:38) and were primarily audio-recorded, although in one case we took notes instead. The lead author transcribed the recordings verbatim, then coded them with Dedoose®, a computer-assisted qualitative data analysis (QDA) program. Codes reflected the CFIR domains and constructs, as well as concepts that emerged from the narrative data. Coding was considered finished when no new codes were required to describe the data. We then used thematic analysis to consolidate and refine the coding scheme and to identify key themes in the data (Braun & Clarke, 2006). The unit of analysis was a facility or affiliated group of facilities. Facilities were categorized as successful in an implementation effort if they reported correctly billing Medicaid for abortion services by 1/1/2019, one year after the policy change.

C. Results

1. Abortion-providing facility characteristics

All facilities had been providing abortions for at least a year before HB 40 went into effect on 1/1/2018. Few respondents reported any staff turnover over the last two years. Six of the included facilities or groups of facilities were already Medicaid providers, while four began the Medicaid application process after HB 40 was signed. Compared to facilities that were already Medicaid providers, facilities that went through the process of becoming a Medicaid provider tend to have higher caseloads, estimate a higher proportion of their patients to be Medicaid eligible, and employ more people in clinical services (Table I). Respondents believed caseloads and staffing remained substantially the same before and after HB 40.

2. Barriers

Every respondent had been aware that Illinois's governor was considering signing HB 40 into law, but none expected HB 40 would go from legislation to reality as quickly as it did. The bill was signed 9/28/2017, and went into effect 1/1/2018 (Lourgos & Rumore, 2018). Many respondents remembered surprise and unease about how quickly it was to go into effect and how much work they needed to do in response. One administrator, still in the process of applying to become a Medicaid provider at the time of the interview, disclosed, "we definitely were not prepared," while another respondent said, "we didn't get enough notice to make it happen. I think if we had known before, like if we had known this was something that was coming down the pipe earlier, instead of a notice in November that it's starting in January, some of this stuff [the facility figuring out how to bill Medicaid properly] would have happened."

Although respondents universally believed that HB 40 would benefit patients, they were simultaneously sure that it would have a negative financial impact on any abortion-providing facility that participated in Medicaid. The respondents perceived a high cost in billing Medicaid for abortion services, since the

reimbursement rate is lower than they received from other payment sources and is accompanied by an administrative burden. This perception led one facility to decide not to become a Medicaid provider, while another facility did not rush to update their existing Medicaid payment procedures ("I don't think it's a priority, especially because of concerns of…we get paid a lot more per procedure than we ever will for Medicaid."), and a third reported having to take "a longer time" to consider whether to become a Medicaid provider because they feared they could not remain open if they chose to accept Medicaid's current reimbursement rate. (Note: within a year of becoming a Medicaid provider, and only months after being interviewed, this clinic did close). Respondents in most hospital settings thought their institutions were "in essence swallowing the cost of a lot of these procedures and not paying a lot of attention to it," and thought their facility's implementation was unaffected by cost considerations.

Lack of preparation time and the cost of billing Medicaid were concerns, but the largest set of barriers to implementation were the Medicaid policies, forms, and systems themselves. Respondents who applied to become Medicaid providers thought the application computer system was complex and the instructions confusing and outdated. Every respondent at facilities that billed Medicaid for abortion services reported being confused or burdened by the associated paperwork. A particular irritation was that many of the billing instructions and forms had not been updated to reflect the passage of HB 40. Respondents spoke of "trying to infer what they might mean, and actually update their forms for them, because …the abortion payment application doesn't have a line…to account for HB 40, so you have to kind of create your own line [for the reason the abortion was performed] because you're not billing because of maternal health, incest, rape."

Finally, the ways in which facilities were structured and the quality of communication and coordination between different departments sometimes served as a barrier to implementation progress. All facilities that already billed Medicaid before HB 40, and therefore simply needed to alter their existing internal systems, policies, and procedures, employed contractors or a department that was physically and

TABLE I. ILLINOIS ABORTION-PROVIDING CHARACTERISTICS, BY MEDICAID PARTICIPATION

Facility type	Pre-HB 40 Medicaid Provider (n=6)	Applying to Become a Medicaid Provider After HB 40 (n=4)
Independent clinic	0 (0%)	1 (25%)
Affiliated clinics	1 (representing 11 facilities) (16.7%)	3 (representing 6 facilities) (75%)
Hospital	5 (83.3%)	0 (0%)
Abortion patients seen per week		
Unknown	0 (0%)	1 (25%)
<10	3 (50%)	0 (0%)
10-50	2 (33.3%)	1 (25%)
>100	1 (16.7%)	2 (50%)
Estimated % of patients eligible for Medicaid		
Unknown	1 (16.7%)	1 (25%)
<25%	1 (16.7%)	0 (0%)
25-50	3 (50%)	2 (50%)
51-80%	1 (16.7%)	1 (25%)
Clinical services staff		
≤10	5 (83.3%)	3 (75%)
≥50	1 (16.7%)	1 (25%)
Billing and payment department		
Separate from clinical services	6 (100%)	1 (25%)
Not separate from clinical services	0 (0%)	3 (75%)

managerially separated from clinical services. Those in clinical services referred to their billing department as a "black box," the forms they sent there as "in the ether," and of the billing personnel said, "They're not even in the same building as us. I don't know anybody over there." Staff in clinical services were not completely disconnected from payment policies and procedures, since they were involved in filling out some forms and pre-authorizing patients' public insurance status. There was a general perception among respondents working on the clinical side of their facilities that their billing department was unaware of what needed to change after HB 40 and placed little importance on adapting in order to bill Medicaid correctly for abortion services. Those in clinical services sought out information about billing Medicaid after HB 40 and were generally more knowledgeable about billing specifically for abortion services after HB 40 than those in the dedicated billing and coding department. In one case, the lack of communication channels between clinical and billing departments led to repeated denials by Medicaid. As one respondent reported, "we couldn't get connected with the people who were doing the billing, and so they weren't using the proper forms that we had been told about…no matter how many times I said that we shouldn't be billing the MCOs for these, that it needs to go to Medicaid and it needs to be on paper and not electronic, they still were doing it the old [pre-HB 40] way because we just weren't able to connect with them." Despite these difficulties, most facilities that were Medicaid providers were able to work out how to correctly bill Medicaid for abortion services within a few months. The sole exception was a facility in which a respondent said they thought the barrier at their facility was that the leadership was ambivalent about abortion services and so did not prioritize adapting their billing procedures.

For abortion-providing facilities that were not already Medicaid providers when HB 40 went into effect, changing billing and payment systems and staff required far more effort. Implementation speed and decisions were influenced by respondents' perceptions of the needs and resources of those seeking abortion. Before becoming Medicaid providers, payment at these facilities had been relatively simple: "as a kind of self-pay, cash-based business, there wasn't so much a need for someone to do billing and coding

in the clinic." The facilities, all of which were clinics rather than hospitals (Table I), needed to set up billing systems, and in some cases hire or contract with people already familiar with Medicaid billing and coding. In this area, the facilities committed resources to the implementation process. However, in terms of the work of applying to Medicaid, only one facility hired a consultant to assist, while most of the facilities added that duty on to existing staff duties. Respondents who had been given the responsibility of working on the Medicaid application were philosophically committed to it and prioritized the application over having free time after hours.

3. Facilitators

There were three main facilitators to correctly billing Medicaid after HB 40. The first was engaging individuals in the implementation. In hospitals, individuals tended to nominate themselves into this role. For example, a hospital that was already billing Medicaid before HB 40 experienced repeated denials for abortion services, and so one physician set out to discover how to avoid denials: " I would say in the first six months of 2018, about half of my job—half of my clinical time—was spent trying to figure this out for abortion patients…trying to figure out insurance with my staff, and trying to figure out whether it would be covered, how we should bill it, what procedures are necessary in order to make sure we do our best to try to get this covered, all that." Their efforts were instrumental to resolving billing difficulties in their facilities. Further, champions' commitment could energize others, as shown by one employee who reported, "it was very inspiring to work with [facility champions] on that. Because they were so engaged for their patients… it really kept me going." In contrast, the individuals driving implementation progress in clinics tended to have been formally appointed to the role, with implementation efforts added to their existing workloads. Their sustained focus on and incremental collection of knowledge about processes and systems enabled their facilities to re-adjust applications after facilities were repeatedly rejected from becoming Medicaid providers.

The second facilitator was a monthly workgroup convened by a national, non-abortion-providing organization. After HB 40 was signed, this workgroup brought together Illinois abortion provider administrative staff, billers, physicians, and other medical providers for monthly discussions. Staff from every facility participating in this research that billed or intended to bill Medicaid for abortion services attended or received information from this workgroup. The discussions included conference calls, which enabled interested parties to "attend" regardless of their location, and meeting minutes so that those who couldn't attend were still aware of updates. Facilities shared guides on the Medicaid application process, problems in the process that they had discovered and how to navigate them, and "tips and tricks of who is actually helpful at the state who you can actually contact with questions and that kind of information sharing." When a physician had a breakthrough in how to bill for post-HB 40 charges using Medicaid forms designed to be used pre-HB 40, they shared it with the workgroup. Other respondents spoke highly of these types of help, with one calling it "a lifesaver." Consultants and others with expertise were invited as well, which respondents found valuable: "talking to other providers in other states that have worked on this, talking to Medicaid in Illinois themselves and saying, 'So what do you wanna know, like what's interesting to you, what's gonna help move this forward,' and just really identifying what the major issues were, was eye opening to all of us." Every respondent that participated in the workgroup reported that it was their primary source of information and answers, "it was really the [workgroup] that had any information or like, tangible information, you know what I mean?"

Even more frequently, however, respondents spoke of the intangible benefits of the workgroup. They appreciated having an opportunity to connect with and have consistent conversations with other providers in the area to "talk about how things were going" and "kind of just bouncing ideas off of each other." Multiple respondents talked about how valuable it was to think through potential issues or contingencies. "I think everybody got out of it the collective knowledge… giving facilities different things to think about. What if I have someone who qualifies for Medicaid but doesn't have it, what do we do for

them? What about a teen who doesn't want their parent to know, all those kinds of things…That was incredibly helpful, in terms of working together, and thinking things through…" Even for those who were not involved in billing or decisions involving Medicaid, participating respondents still saw value, "even if it's not directly relevant to every day work, I personally believe that knowing what's going on in the community in terms of this, *is* a tangible benefit. It keeps me informed about what's happening."

The third facilitator was a private donation of "bridge funding," which provided a financial cushion for abortion-providing facilities during the Medicaid application process. Since facilities that were not yet Medicaid providers could not cover patients using Medicaid, the bridge funds covered the costs of abortion care for Medicaid eligible patients. As a facility administrator explained, "if they had applied for Medicaid, they were given this …funding…Because it could take, depending on when they get a case worker, whatever, anywhere from two to eight weeks to actually be enrolled. And I think the idea behind the program was, you don't want to delay abortion services in putting them into higher gestations or more risky procedures or even to a point where they wouldn't be able to get the procedure, by delaying services by attempting to go through the Medicaid enrollment process." A large minority of abortion providing facilities in Illinois were not Medicaid providers when HB 40 went into effect, and without this bridge fund would have been unable to provide covered care for Medicaid patients. With the bridge fund, "the patients could then feel like…they were getting the care that was now legal in their state, but was not going to be accessible without something like the bridge fund." One respondent thought the idea of bridge funding was "too complicated" for their facility to apply for, but all other respondents were in favor of its design. One administrator from a clinic that used the bridge fund described it as "pretty straightforward," "not very time consuming" to apply for, and then enthused about it further, saying, "the overall structure, and how it was executed… it's like, this dream that we all had, and then someone executed our dream. Best case scenario!" In addition to the benefit to their patients, using bridge funding

also meant that facilities began estimating the proportion of their patient population that used Medicaid, which is useful information when calculating the financial impact of billing Medicaid in the future.

4. Implementation Progress

All participating facilities had certain facilitators and barriers in common. The facilitating factor of perceiving the Medicaid policy change as beneficial to patients and therefore worthwhile to implement was universal, for instance, as was the barrier of perceiving the Medicaid application and billing post-HB 40 as complex and difficult. However, certain facilitators or barriers were more important than others, depending upon the type of implementation in which facilities were engaged (Table II).

All facilities applying to become Medicaid providers experienced the same barriers and participated in the facilitating workgroup. The two facilities that became Medicaid providers by 1/1/2019 each had a quality that set them apart from those that did not. Facility 1 hired a consultant with expertise in Medicaid applications. Facility 2 had a particularly engaged internal implementation leader, who dedicated far more of their free time to overcoming Medicaid application rejections than was reported in any other facility. Facility 3 became a Medicaid provider after 1/1/2019, indicating that dedicating personnel to the application process (whether via formal hiring or enthusiasm) was not a necessary factor but did speed the implementation process.

Of the facilities that were Medicaid providers before HB 40, most successfully implemented any internal changes needed to correctly bill Medicaid after HB 40, such as staff training, by 1/1/2019. Facilities struggled to discover how to correctly fill out forms post HB 40 and share this knowledge with billing and coding departments in the absence of clear channels of communication. As in the other implementation area, facilities largely overcame these barriers either through committing resources (such as an internal consulting team) or by the presence of individuals in the organization that championed and drove the implementation forward. The one facility that reported it was still having difficulty correctly

TABLE II. CHANGING ABORTION BILLING AND PAYMENT PROCEDURES AND POLICIES IN ILLINOIS AFTER THE PASSAGE OF HB 40: FACILIATORS, BARRIERS, AND PROGRESS

Facility	Implementation Barriers				Implementation Facilitators				Implemented by 1/1/2019	
	Cost	Medicaid Complexity, Design Quality & Packaging	Lack of Leadership Engagement	Communication channels within facility	Available Resources	Bridge Fund	Workgroup	Internal leaders or champions	Became a Medicaid provider	Trained staff and changed internal policies and systems
1	Concerned	Concerned	Leadership engaged	Open communication	Expert consultant hired for Medicaid application, internal training	Accepted	Attended	Present	Yes	Yes
2	Concerned	Concerned	Leadership engaged	Open communication	No additional resources	Accepted	Attended	Highly present	Yes	Yes
3	Concerned	Concerned	Leadership engaged	Open communication	No additional resources	Accepted	Attended	Present	No	N/A
4	Concerned	Concerned	Leadership engaged	Open communication	No additional resources	Did not apply	Attended	Present	No	N/A
5	Concerned	Concerned	Leadership engaged	Open communication	Internal training	N/A	Attended	Present	N/A	Yes
6	Concerned	Concerned	Lack of leadership engagement	No communication channel	No additional resources	N/A	Attended	Present	N/A	No
7	Not concerned	Concerned	Unclear	No communication channel	Consultant team hired	N/A	Received information from but did not attend	Present	N/A	Yes
8	Not concerned	Concerned	Unclear	No communication channel	Consultant team hired	N/A	Attended	Highly present	N/A	Yes
9	Not concerned	Concerned	Lack of leadership engagement	No communication channel	No additional resources	N/A	Attended	Highly present	N/A	Yes
10	Not concerned	Concerned	Unclear	No communication channel	No additional resources	N/A	Attended	Present	N/A	Yes

billing Medicaid attributed this to lack of leadership engagement combined with lack of communication with the billing and coding department.

D. Discussion

All respondents from abortion-providing facilities in this study viewed HB 40's removal of restrictions for Medicaid coverage of abortion as beneficial to patients, and prioritized patient needs in decision making. Where respondents' experiences differed was, not unexpectedly, by the type of implementation effort required by their facility. When abortion-providing facilities that were already Medicaid providers changed internal payment policies and procedures, the main barriers they faced originated in the complexity of Medicaid policies and systems, and confusion stemming from the way post-HB 40 policies were communicated and packaged. Further, the organizational structure, individual effort, and leadership engagement in these facilities mattered. Without open channels of communication between clinical and billing departments, or commitment and involvement from facility leadership, correctly billing Medicaid for abortion services stalled.

Facilities that applied to become Medicaid providers also faced the barriers of Medicaid-related complexity and confusion, but were additionally concerned about the costs associated with becoming Medicaid providers. All of these facilities had engaged leadership and open communication between billers and clinical staff. Facilities differed in level of resources committed to implementation: facilities that had a dedicated person working on the Medicaid application process became Medicaid providers more quickly. Intriguingly, although barriers and facilitators differed slightly by implementation type, both types of implementation relied heavily on a few key drivers: individuals within each organization who dedicated time and effort to overcoming rejections or resistance, and a facility-spanning workgroup that provided all respondents with information, social support, and opportunities to plan and reflect on the implementation process.

When asked, respondents from all facilities had several recommendations for other jurisdictions considering similar Medicaid policy changes: more involvement with abortion-providers in crafting the policy; more than three months to prepare before the policy change goes into effect; the provision of up-to-date forms, handbooks, and website ready for use when the policy goes into effect; and the provision of technical assistance with respect to becoming a Medicaid provider and how to correctly bill for services. Based on this study, we add two recommendations for facilities interested in changing their payment systems: engage at least one individual who can dedicate themselves to supporting the change; and, either create or participate in an inter-organizational workgroup. Individual champions and learning collaboratives such as the abortion-providing facilities' monthly workgroup have been demonstrated to support and speed success in implementing changes as varied as establishing abortion services in hospitals (Holmquist et al., 2016) to increasing access to immediate postpartum long-acting reversible contraception (DeSisto et al., 2017; Okoroh et al., 2018).

Despite similarities in effective implementation strategies, some characteristics of this particular implementation differentiate abortion providers from other health care providers. Facilities and individuals who provide abortions have historically been marginalized, stigmatized, and structurally set apart from other health care services (Murphy, 2017; Norris et al., 2011). This has several effects that may have influenced implementation. First, administrators and workers in abortion-providing facilities were already aware and very supportive of HB 40; no activities or strategies were required to educate or convince anyone of its benefits. Second, those involved in abortion provision already conceptualized and described themselves as a "community," which not only encouraged them to join the workgroup, but also enabled the workgroup to more easily provide social support. Perhaps most importantly, the sense of community acted as a motivating factor. Respondents were aware of HB 40-related issues other facilities were having, and sought to either help them or speed up their own implementation in order to take up expected slack. Other implementation evaluations in health care settings (Damschroder & Lowery, 2013;

DeSisto et al., 2019; Kegeles et al., 2015; Kramer et al., 2017; Liang et al., 2015; Vidgen et al., 2018; Weintraub et al., 2019) have also found no impact from the construct of "peer pressure," in which organizations adopt an innovation in order to imitate or compete with other organizations, but this study identified the reverse: abortion-providing facilities pursued implementing payment changes in part to aid their peers.

Our use of an overarching taxonomy of implementation theory constructs enabled us to be comprehensive in our identification of barriers and facilitators. Moreover, using shared terminology and theoretical constructs allows comparisons between studies to identify what works where and in what contexts, facilitating effective planning for future implementation efforts. As suggested in Damschroder et al. (2009), our interviews elicited the perceptions of those in the implementing organizations. Although this enabled us to focus on providers' experiences and processes, further research is needed to understand any related implementation issues within the Medicaid program itself, as our findings are limited to the perspectives of abortion-providing facility administration and staff. Furthermore, we relied on facilities to nominate knowledgeable respondents; we cannot guarantee that their attitudes or experiences were truly representative of each facility as a whole. Additionally, interviews were conducted approximately a year after the implementation efforts began, such that respondents' descriptions of their perceptions and actions earlier in the implementation process may be subject to recall bias. Further research is needed to describe what impact, if any, the removal of Medicaid restrictions on abortion services coverage have had on patients' experiences and health.

E. Conclusions

Abortion-providing facilities in Illinois implemented changes to their billing and payment policies, procedures, and workforce in response to the removal of state Medicaid restrictions on reimbursement for abortion services. Administrators and staff at facilities perceived the eligibility policy change to be to

the benefit of abortion patients but the financial detriment of abortion-providing facilities. The main barriers to implementing payment changes were a lack of communication between departments within each facility, and issues related to the complexity of Medicaid forms, communications, and policies. In most cases, abortion-providing facilities overcame these barriers by committing resources to areas of confusion, through individuals who championed the implementation, and by collaborating in a cross-facility workgroup. Less than two years after the Medicaid policy change, most abortion-providing facilities in the state had adapted to it.

V. ABORTION PROVIDERS' EXPERIENCES WITH MEDICAID AFTER COVERAGE POLICY CHANGE: A QUALITATIVE STUDY

A. Introduction

From the passage of the Hyde Amendment in 1976 until December 31, 2017, Illinois Medicaid law did not allow reimbursement for abortion except when the pregnancy resulted from rape or incest, or to preserve the health or life of the pregnant person (Lourgos & Rumore, 2018). In the 2017 Illinois legislative session, HB 40 was signed into law, which removed the provision excluding "abortions, induced miscarriages, or premature births" from the list of services covered under the State's Medical Assistance Program (Illinois General Assembly, 2017). As of 1/1/2018, Illinois allows state funds to be used to cover abortion services for eligible persons in the Medical Assistance Program (Norwood, 2017). The removal of restrictions on public insurance coverage for abortion could lead to expanded access to care for Illinois Medicaid enrollees, but only if abortion providers accept and bill Medicaid. Ensuring that abortion providers participate in Medicaid requires understanding their barriers to participation, but research on experiences with Medicaid and decision making among abortion providers with respect to seeking reimbursement is limited.

A number of barriers to providers' Medicaid participation throughout the US have been identified, some of which are shared by health care facilities of all types, others of which are specific to abortion-providing facilities. The primary barrier to accepting Medicaid identified for both abortion-providing facilities and other types of health care providers is low Medicaid reimbursement rates and slow reimbursement times comparative to other payers (P. J. Cunningham & O'Malley, 2008; Kacanek et al., 2010; Kimport & Rowland, 2017). Staff at abortion facilities stated that reimbursement rates were so low that they did not cover the costs of care (Kimport & Rowland, 2017), and that they could not stay in business if they continued to bill Medicaid (Kacanek et al., 2010). Also common to both abortion-

providing facilities and other provider types is a perception of a high administrative burden associated with participating in Medicaid (Berman et al., 2002; P. J. Cunningham & O'Malley, 2008; Kimport & Rowland, 2017; Kusserow, 1992). Lastly, abortion-providing facility staff have reported reticence of state Medicaid staff to work with abortion providers. In some cases, state Medicaid staff were either unaware of or would not acknowledge state policies for reimbursement of abortion services (Kacanek et al., 2010). Abortion-providing facility staff reported routine denial of claims for no given reason or for minor errors (Dennis & Blanchard, 2013; Dennis et al., 2011). Unlike the other barriers to Medicaid participation or reimbursement, these are specific to abortion-providing facilities.

Whether abortion-providing facilities in Illinois have experienced similar barriers is unknown, as are their motivations and experiences when applying to become Medicaid providers. We seek to fill this knowledge gap by evaluating Illinois abortion–providing facilities' experiences with the new Medicaid policy for abortion services brought about by HB 40, and exploring what factors facilitate or hinder abortion-providing facilities' participation in Medicaid.

B. Methods

Abortion providing facilities eligible for inclusion in the study were those that legally provided at least one abortion in both 2017 and 2018 in the state of Illinois. We used online resources (Abortion Clinics Online; National Abortion Federation, 2018; Safe Place Project, 2018) to identify abortion providers in Illinois, and identified 29 facilities operating as of 3/2018. One additional facility was identified by an interview respondent. Each non-hospital abortion-providing facility had a public website, which we used to determine whether the facility was independent or affiliated with other abortion-providing sites or a larger organization.

We mailed letters to all abortion providing facilities in Illinois introducing the study's aims and design, then followed up 2 weeks later with a phone call to each facility to identify a representative of the

facility and invite them to participate in an interview. We asked to speak with the staff member(s) who were best able to answer questions about billing and payment procedures for abortions at their facility. Prospective respondents needed to be 18 years or older, English-speaking, and verify that they had experience with billing and/or reimbursement at an abortion-providing facility. Twenty of the identified facilities operated under the same management as at least one other facility; in cases where billing and reimbursement decisions and procedures were the same across affiliated facilities, only one interview was conducted unless the staff member who was first recommended indicated interviews with additional staff members were necessary.

Two facilities (1 hospital, 1 affiliated clinic group) were unreachable after multiple contact attempts. We identified eligible staff at the twelve remaining facilities or groups of facilities. Staff at 10 facilities indicated that a single staff member was eligible and sufficiently knowledgeable. Two facilities recommended we talk to two staff members working in different domains. One interviewer conducted the telephone interviews between December 2018 and September 2019. Two facilities agreed to be interviewed but declined to be audio-recorded; in these cases the interviewer took detailed notes. Staff of ten facilities consented to an audio-recording of the interview, and these recordings were transcribed verbatim. Interviews took between 17:35 to 54:30 minutes (average 32:28). In all, we interviewed 14 abortion providing facility staff representing 25 facilities or groups of facilities.

The interviews were semi-structured in order to both systematically capture similar information across interviews while also allowing respondents to introduce new concepts. The interviews included questions about facility and staff characteristics, the number and types of abortions performed per week, awareness of and preparations for the passage of HB 40, experiences with Illinois Medicaid and other payment methods, and perceptions of what, if anything, HB 40 meant in terms of their patients' experiences.

All study respondents gave verbal informed consent before the interview. The University of Illinois at Chicago Institutional Review Board determined this research to be exempt from review.

Analysis of the qualitative data took place through a process of thematic analysis (Braun & Clarke, 2006) that involved careful reading of transcripts or notes, labeling passages of text with codes that reflected key concepts, development of themes based on code/text patterns and relationships, and final summaries and interpretations of the data. Analysis was conducted using Dedoose®, a qualitative data analysis software program. Our initial set of codes was generated based on the study's research questions, and additional codes were developed that reflected new topics or nuances grounded in the data. Once satisfied that the code list was suitably complete, we used sets of related codes to retrieve text passages and develop themes. These themes were refined to ensure they were coherent, reflected interview content, and had internal homogeneity and external heterogeneity (Braun & Clarke, 2006). All quotes are presented verbatim. In a process known as member checking, results were shared with respondents for their input on the findings and interpretations.

C. Results

1. Facility and respondent characteristics

We identified fourteen abortion-providing facilities or affiliated groups of facilities (meaning they had shared decision makers and administrative procedures) providing abortions in Illinois as of 3/2018. We interviewed staff from 12 of those facilities or groups of facilities. Participating staff were an even mixture of physicians, administrative or billing staff, and administrators (Table III). Most respondents had been employed at the facility for years, although two respondents had been employed at their facility for less than a year before HB 40 passed. Respondents represented a variety of types of abortion providing facilities and abortion caseloads (Table IV). In 2017, before HB 40 expanded Medicaid eligible reasons for abortion services, all abortion-providing hospitals were Medicaid providers. Some affiliates of clinic

groups were Medicaid providers and others weren't, and none of the independent clinics were Medicaid providers. A year after HB 40 went into effect, only two non-hospital facilities who had not been Medicaid providers had successfully become Medicaid providers, while two other non-hospital facilities were still in the Medicaid application process (Table IV).

TABLE III. PARTICIPATING STAFF CHARACTERISTICS

Characteristics	Respondents, n=14 (%)
Respondent profession	
Physician	5 (35.7%)
Administrative staff	5 (35.7%)
Administrator & physician	4 (28.6%)
Years at facility	
Less than 2	2 (14.3%)
More than 2	12 (85.7%)

1. Experiences with Medicaid before HB 40

Respondents' past experiences and perceptions of billing Medicaid for abortion services were generally negative, in that they recalled Medicaid reimbursement for abortion services as inconsistent and unpredictable. Before HB 40, many reported they could not count on reimbursement even for cases

TABLE IV. PARTICIPATING ABORTION-PROVIDING FACILITY CHARACTERISTICS

Facility type	Facilities, n=12 (%)
Independent clinic	3 (25%)
Affiliation of clinics	4 (representing 17 facilities in total) (33%)
Hospital	5 (41.7%)
Medicaid experience	
Medicaid provider both before and after HB 40	6 (50%)
Medicaid provider after HB 40 only	2 (16.7%)
In Medicaid application process when interviewed	2 (16.7%)
No intentions of becoming Medicaid provider	2 (16.7%)
Abortion patients seen per week	
<10	3 (25%)
10-50	6 (50%)
>100	3 (25%)
Estimated % of patients who are eligible for Medicaid	
Unknown	3 (25%)
<25%	1 (8.3%)
25-50	5 (41.7%)
51-80%	3 (25%)
Formal connections to other abortion-oriented organizations	
Yes	11 (92%)
No	1 (8%)

that fit into the eligible criteria (rape, incest, or life endangerment). One physician heatedly spoke of a "really ridiculously over-the-top-indicated to preserve a mother's life" case that Medicaid denied coverage. An administrative staff member talked about the effort required to pursue Medicaid reimbursement: "They just hope that law of attrition, you'll just eventually walk away and deal with it. Or that you just won't have the staff to pursue enough of these cases to get paid." Not being able to count on reimbursement in cases they thought fit the Medicaid criteria at the time affected how they scheduled their patients: "In the past we were looking and saying: here's an MCO, we don't know whether they're going to cover this particular person's abortion, and we don't have clinical information to give them until they show up in our clinic on the day of, and maybe that changes the determination, and maybe the MCO decides they want several days to figure it out, right, and don't know if we have to bill the patient out of pocket in the meantime, which they may not have, if we're going to perform the procedure the same day because we don't know if their insurance is going to cover it or not."

Most of the independent clinics had once been Medicaid providers prior to HB 40, but stopped accepting Medicaid ten years or more ago. Two of the clinics found that the effort required to participate in Medicaid was not worth it. As one administrative staff member said, "we would never receive payment, and the payment is too low. We were losing money just on medication abortions. For patients farther along who required surgery, it was even worse." Another also reported on the low level and slow reimbursement and repeated denials of claims, but at their facility the financial component was almost secondary to the administrative burden. The respondent talked about the burden of paperwork for Medicaid and ended with, "it just makes everything a lot more complicated…the aggravation doesn't even out with actually accepting it." At one facility, the respondent had not been with the clinic long enough to know why they stopped participating in Medicaid years before, but assumed it was because they stopped providing other Medicaid billable services such as contraception and shifted entirely to abortion services, after which it "really didn't have anything to bill them for."

2. Choosing to become a Medicaid provider

Few clinics, whether independent or affiliated, immediately began the application process to become a Medicaid provider after the passage of HB 40. The decision whether to do so was made by the owners (in the case of independent clinics) or executive teams (in the case of affiliated groups of clinics), not the medical or administrative staff working at facilities day-to-day. Still, several respondents felt comfortable opining on what factors their leadership considered when deciding whether to become a Medicaid provider.

For all the clinics that began the application process to become a Medicaid provider, their staff spoke of a personal and facility-wide commitment to providing and expanding access to legal abortion services. For some, there was conflict about how best to satisfy their facility's mission. One affiliated clinic administrator expanded on this, saying, "at the current reimbursement rates that the state offers, I don't think that any clinic could be sustainable…we wanted to be able to help more women, we knew that that was important, but…we also have the goal of staying open so that we can be here to help women throughout the Midwest." Clinics took time to think through the possible impact to their business. Worry about financial sustainability was heightened by concerns about the political and economic climate ("particularly in the challenging times that we're entering,") and in some cases, awareness that the facility provided a relatively unique type of care due to geographical location or gestational age limit, and therefore its continued existence was considered particularly valuable. For at least two clinics, concerns about a low Medicaid reimbursement rate were lessened by the promise of bridge funding from a private donor during their Medicaid application process. The Illinois Bridge Fund covered the costs of abortion services to all patients who would presumptively be eligible for reimbursement from Illinois Medicaid who received care at facilities in the process of applying to become Medicaid providers.

Several clinics (n =2) decided not to become Medicaid providers after the passage of HB 40. The decision-makers at these clinics were apprehensive about what accepting Medicaid would mean for their

finances: an administrative staff member reported "it's a business," and that they remembered "issues with Medicaid not paying the full amount in the past, or taking a long time to pay." They saw this as potentially interfering with their clinic's priority of giving patients quality one-on-one care and prided themselves on creating an atmosphere "almost like a private doctor." Taking care of staff was another concern that led to non-Medicaid participation: one clinic didn't see how they could continue to pay their doctors if they were reimbursed at the rate Medicaid paid. Lastly, staff's opinions of Medicaid enrollees may have played a role in whether to participate in Medicaid. Staff at the clinic that prided itself on giving their patients high-quality care also talked about how their doctor was "much happier now doing a very select group that pays mainly out of pocket. Because it filters out your clientele. A lot. So we actually like to have a more exclusive, smaller clientele here."

3. The Medicaid application process

In 2018, four abortion clinics or groups of clinics began the application process to become Medicaid providers. This process was universally described as time-intensive, confusing, and difficult, with billers, administrative and clinical staff alike referring to it as "frustrating," "lengthy," or "a very hard process." Respondents identified four aspects of the process that particularly acted as barriers. First, the Illinois Medicaid computer system was described as "quite antiquated." One respondent who billed Medicaid in multiple states for a group of clinics pointedly said, "There's definitely a lot about Illinois's system that needs to be updated in order to make it more streamlined for providers." Another, who had never billed Medicaid before, talked about spending long frustrating hours with the system in which they would get "stuck in a loop" where "it wasn't clear exactly what you needed to do." This was compounded by the second barrier, which was that the computer system, system help guide, and forms had not been updated since the passage of HB 40. Respondents spoke of being confused about what parts of each still applied because "it's just, so out of date."

This confusion was linked to the third barrier: the Medicaid website and employees either did not provide information, or gave inconsistent responses to questions about the application process. One respondent spoke on what this meant in terms of staff time: "yesterday I spent like 20 minutes searching through one of the websites looking for the answer to one question, and never did find it." Another said the following about contacting Medicaid employees for help with the process, "it really just depends on who you get, like you would occasionally get a super, super helpful employee who would go above and beyond to help you, you know like, get things taken care of. And then occasionally I would read the email and I would be like, you just repeated the question I had. There's no answer here. You just repeated the question that I wrote in the email. So. Sometimes it was good and sometimes it was bad." Even when a respondent reached someone helpful at Medicaid, they knew they could not count on talking to that person again, or that particular person being able to help again. As one administrator said, "One day this person that you talked to on the phone would be helpful and then the next day, they were not so helpful…there was no consistency." And although respondents generally described Medicaid employees positively, saying things like, "they're actually very nice at the help desk," employees also gave the impression of being too busy to answer questions by phone and took a long time to answer emails: "you email a question and then it takes three weeks to hear back". In sum, abortion clinic staff did not feel that Medicaid resources were helpful in the application process.

Finally, every abortion clinic or group of clinics spoke of long periods of time in between application attempts. "What takes a lot of time, like, length wise, is you put a bunch of information in and then several months later you hear like, 'oh, there's a question about this'… You put stuff in, it takes a long time to hear back. You put more stuff in, it takes a long time to hear back. Then you put more stuff in—so it's taken us, I mean we started this in, before the beginning of 2018, so the end of 2017, and we're still not quite there yet [in May 2019]." Respondents spoke of submitting "a hundred times" and waiting two to four months in between a response each time.

One of the two clinic groups that successfully became a Medicaid provider within a year of beginning the application process hired a contractor to handle the application. Their contractor was a medical billing and coding specialist who had "navigated it for other states." The other clinics applying to become Medicaid providers relied on their own administrators and administrative or billing staff. And although each were positive that they were close to a final acceptance by the time of the interview, each also spoke of the burden of pursuing the application in addition to their regular work: "it was basically just me doing the legwork and that was, you know, after seeing 50 patients a day." The respondent, who handled billing for multiple clinics, expanded further, saying, "Yes, my life has been very much affected. No, um, honestly, I've had arguments with my spouse for the first time about the amount of time that I spend at work, to the point that there was a question about whether maybe I was being unfaithful, because I was spending so much time at work, like late at night…Sometimes I don't go home until 11." Although each of the respondents spoke of the time and effort required to keep the application process going, even many months of frustration later they were still dedicated to the effort because of their philosophical commitment to expanding abortion access, saying things like, "I enjoy what I do, I think it's important work."

In addition to having one to two employees who dedicated themselves to seeing the process through, respondents also found support from the staff of other abortion providing facilities. After HB 40 was signed into law, the American Civil Liberties Union (ACLU) convened and facilitated a workgroup to help abortion providers in Illinois through the Medicaid policy transition process. The ACLU and the abortion-provider staff in this workgroup were the primary source of useful information for every respondent. When asked where they got information about applying, one respondent said, "Nothing from Medicaid. The only directives we've had, the only advice we have had, has been interestingly from abortion providers themselves, who've been meeting at the, with the help of ACLU… organized meetings of most area abortion providers." Another, even more strongly stated, "it was really the ACLU that had

any information or like, tangible information…Otherwise we would sort of be lost." The ACLU itself wasn't the only source; when respondents found useful information, they shared it with the rest of the workgroup. For example, one respondent found a slideshow guide to the application process (unfortunately, made for a previous version of the Illinois Medicaid computer system) and shared it with the rest of the workgroup; other respondents referenced this guide in their own application process. Others provided "tips and tricks" such as which Medicaid employees they'd found helpful. In addition to information, the workgroup also provided morale and social support for the respondents, ensuring that they knew they were not alone in their difficulties. Furthermore, the ACLU workgroup hired consultants to look into the reimbursement rate in Illinois, which gave clinics hope that it would not always be unsustainably low.

4. The experience of pre-HB 40 Medicaid providers

All abortion providing hospitals in Illinois, and one group of clinics, were already Medicaid providers when HB 40 went into effect on 1/1/2018. They too had work to do in the wake of the change to abortion services coverage, in two areas. First, Illinois Medicaid billing forms had not changed since HB 40 went into law, and so the forms still require providers to state for which reason (rape, incest, or health endangerment) the abortion was performed. The Illinois Department of Healthcare and Family Services (HFS) sent a provider notice with billing instructions (Norwood, 2017), but every respondent was left confused. Understanding how to bill for abortion services for reasons beyond rape, incest, or health endangerment added to staff workloads. One physician said, "I would say in the first six months of 2018…of my abortion providing time? I would say as much as half of that was spent trying to figure out insurance with my staff, and try to figure out whether it would be covered, how we should bill it, what procedures are necessary in order to make sure we do our best to try to get this covered, all that." They did figure it out (another respondent admiringly described them as "like a terrier after this") and shared their tips with other providers. Even then some hospitals had trouble submitting claims, either because

the clinical services departments had trouble communicating their discoveries in how to bill with their separate billing departments, or because they had so rarely had cause to bill Medicaid for abortion before that they needed to entirely learn how to do so.

The second issue was that the majority of Medicaid clients in Illinois are enrolled in a managed care organization (MCO), and each MCO has its own contact people, eligibility criteria, and claims procedures (Illinois Department of Healthcare and Family Services, 2020a). Respondents found that MCOs changed their abortion coverage policies month to month ("at first they were saying, 'no, no, no' and then they were saying, 'yes, yes, yes,' and now they're saying, 'no, no, no" again.') or inconsistently approved claims for some covered reasons but not others. Patients' MCO cards did not have their case numbers on them, which for facilities seeking to bill Medicaid meant "dedicated people sitting on the phone for hours and hours at a time, calling the state over and over again to get the case numbers in order to bill the claims." Additionally, facilities contract with each MCO separately, such that not every MCO is contracted with every abortion facility, and the MCOs that a facility is contracted with may change several times a year. When asked whether they knew which organizations could be billed for what, one physician said despairingly, "It's like an ever-changing…you can't keep up with it."

This combination of complexity and lack of clarity led to Medicaid denials, which meant facilities lost money, which in turn jeopardized their ability to stay open and continue providing care. Staff workloads increased: one administrative worker said they had "whole days were I did nothing but call about 6 or 7 patients…back and forth with managed care and so forth." This meant some patients waited for abortion services longer than they needed to; a respondent at a hospital reported that because of changing MCO policies, "that bottleneck [of inconsistent requirements for payment by MCOs] was causing people to have to wait. You know, just physically wait…because you're on the phone with their insurance."

5. Overall experiences with Medicaid after HB 40

More than a year after Illinois Medicaid expanded coverage for abortion services, abortion providing facility respondents described multiple challenges in making this coverage a reality. Facilities that had already been billing Medicaid before HB 40 experienced little change in the workload or time required to fill out paperwork, although some saw increased time seeking preauthorization from MCOs and MCO patients' case numbers. Clinics that only started billing Medicaid for abortion services after HB 40 were surprised that it required proprietary paper forms and envelopes that had to be ordered from the state (these took one facility over a month to receive), typewritten, and could be paper clipped but not stapled or folded. One new Medicaid provider reported, "There's a lot of barriers there that if you don't do it 100% right they're immediately denying your claim." Their frustration was echoed by another new Medicaid provider, who added that in addition to their workers finding paper billing difficult, they were concerned that there was no way to track their submitted claims. A respondent from a third facility that was planning on billing Medicaid added that they were "very concerned" that sending in paper forms that the state had to input into computer systems created additional opportunities for errors to take place. All told, multiple respondents wondered aloud whether these barriers had been left in place to enable claim denials. However, they had the overall impression that these barriers and levels of denials were (as said by one physician who billed public and private insurance for abortion and non-abortion services), "just like all the other insurances. Medicaid isn't always the worst; they can all be a problem and deny a legitimate claim. [Claims denials are] something that you routinely see as you do any kind of healthcare…I haven't seen any new significant problems since the passage of HB 40."

In terms of patient load, respondents at most facilities perceived little change before and after Medicaid expanded its eligibility criteria for covered abortion services. A few changes were noted: directly after HB 40 went into law, when only one group of clinics accepted Medicaid, these clinics saw an increased rate of patients for a few months. A year after HB 40, several clinics thought their

predominantly Medicaid-eligible patient populations were coming for abortions earlier in their pregnancies. One hospital reported a higher cancelation rate because patients would make an appointment, then find another abortion facility that contracted with their MCO which would more readily ensure their procedure would be covered.

Nearly every respondent extemporaneously spoke about the positive effect they had seen for their patients' health and wellbeing. Although the Medicaid policy change had required staff time and effort, every respondent was glad it had happened. One respondent opined, "It is truly the case that women who never had access to abortion now have access to abortion." Another said, "I've cried with so many patients this year telling someone like, 'just come in' and hearing them say 'You are kidding right.' 'No, just come in.' And just breaking down because yeah, it's such a relief." Respondents at hospitals that had already billed Medicaid were pleased that now they could "provide the full scope of care" for their patients and said things like, "it's allowed us to...take care of our own patients and to take care of some patients we should have been taking care of all along." Even clinics that chose not to become Medicaid providers saw the policy change as a positive. As one respondent said, "And the patients that can't afford [our] care, it's nice that they do have an option to go to a different clinic that does, you know, accept Medicaid payments." In summary, the Medicaid policy change was universally seen as a much needed and positive change.

D. Discussion

Consistent with research in other states (Kacanek et al., 2010; Kimport & Rowland, 2017), few independent abortion-providing clinics were Medicaid providers when Medicaid funding was restricted to abortions for rape, incest, or life endangerment. Unlike previous findings from across the US (Kacanek et al., 2010), respondents from Illinois facilities did not report concerns about identifying or proving rape, incest, or life endangerment cases in order to bill Medicaid before HB 40. Instead, their concerns when

billing Medicaid before HB 40 were entirely administrative and financial: the administrative burden, the inconsistency of denials, and the low reimbursement rate. Also in contrast to earlier research, (Dennis & Blanchard, 2013; Kacanek et al., 2010; Kimport & Rowland, 2017), the perception of an inadequate reimbursement rate did not stop the majority of abortion-providing facilities in Illinois from either becoming or continuing to be Medicaid providers after HB 40 was passed. In the cases of hospitals, respondents thought that because abortion services were only a minor component of overall services, the reimbursement rate did not threaten the facilities' financial sustainability. Those independent clinics that chose to become Medicaid providers seemed motivated by a commitment to increasing abortion access that overcame their concerns about what accepting Medicaid would mean for them financially.

Respondents saw value for their patients in the Illinois Medicaid eligibility expansion for abortion services, and also identified areas of Illinois Medicaid that could be improved. A shorter, more straightforward application process to become a Medicaid provider would enable clinics to provide Medicaid covered abortion care for their patients earlier. Using an electronic billing system, rather than one based on proprietary paper forms that need to be handled in particular ways and mailed, would reduce health care facility staff workload, reduce processing time, add the ability to track claims, and could potentially reduce errors. Transparent and consistent policies from MCOs would also reduce workloads and confusion. Lastly, reimbursement rates at least commensurate with the cost of providing abortion services would enable more health care facilities to provide abortion care. These issues are not unique to abortion-providing facilities or staff; all of these factors are known barriers to Medicaid participation within health care in general (Kusserow, 1992).

Going forward, the findings presented here may assist Medicaid or state legislature leadership in understanding how changes to Medicaid policy are perceived by abortion providing facilities and might suggest legislative and administrative changes that might be necessary to maximize the impact of HB 40. Several months after this study was conducted, Illinois Medicaid switched to electronic billing for abortion

procedures, streamlined abortion billing for MCO participants, and adjusted abortion reimbursement rates (Elwell, 2019), all of which may be expected in increase provider participation in Medicaid, based on both this study's findings and those of others (P. J. Cunningham & O'Malley, 2008; Dennis & Blanchard, 2012; Kusserow, 1992). Facilities preparing to become Medicaid providers may use this information to identify and prepare for potential barriers to applying for or billing Medicaid for abortion services. Additionally, this information may provide an explanation or useful context to understand quantitative analyses of Medicaid payments for abortion services post HB 40.

This research adds to the limited literature describing the experiences of abortion providing facilities with Medicaid. A strength of this study is that it includes the perspectives of most abortion providers in Illinois in their own words. There are limitations, including recall bias, since we asked respondents to recall their experiences with Medicaid from over a year before. Further, decision-makers for only a few facilities were available to be interviewed; in most cases, the respondents were staff who had themselves not decided whether or not to apply to become a Medicaid provider. We relied upon facilities to nominate respondents and cannot guarantee that every respondent had full and accurate information about their facility or group of facilities. Though we approached all abortion providing facilities in the state, we were not able to reach two. Also, since the data were collected, Illinois Medicaid and MCO procedures and guidance have changed (Elwell, 2019). Finally, this research was conducted entirely in Illinois and may not be generalizable beyond this state.

E. Conclusion

A change to Illinois Medicaid policy expanded coverage of abortion services for enrollees in the state. Staff of Illinois abortion providing facilities have seen the value of expanded coverage for their patients, but are concerned about the reimbursement rate for services and the Medicaid application and billing systems and procedures. These findings suggest that expanding Medicaid abortion coverage is

necessary but not sufficient to ensure increased access. Supporting providers in their transition to Medicaid coverage and encouraging providers to participate should be considered so that increased abortion access becomes a reality.

VI. SECOND TRIMESTER ABORTION BEFORE AND AFTER STATE MEDICAID COVERAGE OF ABORTION

A. Introduction

Since 1977, the Hyde Amendment has restricted the use of federal funds to cover abortion services for Medicaid enrollees only to cases of rape, incest, or life endangerment (Henshaw et al., 2009). A minority of states use state funds to pay for Medicaid patients' abortions that occur under other circumstances (Guttmacher Institute, 2020b). On 1/1/2018, Illinois joined these states and now allows state funds to be used to cover abortion services for Medicaid enrollees (Norwood, 2017). This provides a rare opportunity to describe how the expansion of Medicaid coverage for abortion impacts women's use of abortion services.

The majority of the literature on the impact of Medicaid abortion coverage relates to restrictions on Medicaid funding (Henshaw et al., 2009). In the absence of Medicaid coverage, Medicaid-enrolled patients pay out-of-pocket for services, posing a significant burden for low-income women, who report delaying paying rent or bills, and going without food or other needs in order to pay for abortion services (Dennis et al., 2014, 2015; Margo et al., 2016; Ostrach & Cheyney, 2014). Restrictions on Medicaid coverage for abortion can delay the decision to obtain an abortion due to the time required to raise money for the service (Finer et al., 2006; Janiak et al., 2014), potentially by more than two weeks (Henshaw et al., 2009), thus increasing the likelihood that women terminate the pregnancy beyond the first trimester and increasing the complexity and cost of the procedure. Lack of coverage may prevent abortions entirely: during the last decade, an estimated 18-35% of pregnant Medicaid-eligible women would have had an abortion if Medicaid covered abortion services in their state (Henshaw et al., 2009; Roberts et al., 2019).

Expanding Medicaid-covered abortion services in Illinois could have multiple effects. . On the one hand, it could be expected to remove financial barriers, and thereby decrease the gestational age at

termination among Illinois abortion patients. On the other, Medicaid coverage could also enable those who would otherwise not be able to access legal abortion to seek abortion services. Since abortions are more expensive at higher gestational ages (Jones et al., 2018) the effect of expanded Medicaid coverage could be differential by trimester, with a greater increase in access among those at higher gestational ages. If this is the case, the average gestational age might actually increase after Medicaid coverage of abortion is instituted. Either or both of these effects may occur.

We analyze data from one abortion-providing facility in Illinois for the 2 years before (2016-17) and 1 year after (2018) Illinois Medicaid began covering abortion services in order to evaluate whether patient characteristics or trimester of termination changed after the state removed the restrictions on Medicaid coverage for abortion services as of 1/1/2018. First, we performed trend analysis of second trimester abortions for patients by state of residence, and identified any points of change in the trends. Then, we estimated the impact of Medicaid coverage of abortion services on Illinois patients' gestational age at termination. We compared differences in second trimester abortion in Illinois patients before (2016-17) and after (2018) the Illinois Medicaid coverage change with differences in second trimester abortion "before and after" no Medicaid coverage change in patients from Missouri. Patients from Missouri are assumed to be unaffected by changes to Illinois Medicaid coverage, but similarly affected by other time-varying factors. Patients from Missouri may also have been affected by Missouri-specific changes to abortion access and sociopolitical culture, notably that one of two abortion-providing clinics in Missouri stopped providing abortions in October 2018 (Ellis, 2019), and bans on abortion after 8, 14, 18, or 20 weeks gestation have been voted on and signed into law in 2016, 2017, and 2018 (although none are in effect) (Thomas, 2019).

B. Methods

1. Data

This retrospective administrative record review consists of data from patients at an abortion-providing facility within twenty miles of the Illinois-Missouri border who received abortion services between 2016 and 2019. Facility staff de-identified and shared their administrative database, which included patient age, race/ethnicity, procedure type (medical or surgical abortion), gestational age, price paid, marital status, number of prior abortions, pregnancies, and births, residential zip code, and date of procedure. Clinical staff reported estimated gestational age and abortion procedure type; all other variables were reported by patients. For part of December 2018, abortions were only provided up to 10 weeks gestation, so data for patients on those 7 days (n=127) were dropped for all analyses. Between 2016 and 2018 the facility provided 9,534 abortions to 8,416 patients; we restricted our study to the 9,001 abortions to 7,875 patients who resided in Illinois or Missouri.

During the first time period we reviewed (2016 and 2017), the clinic was not an enrolled Medicaid provider, and thus no Medicaid-covered abortions were performed at this clinic. The facility also did not systematically track patients' Medicaid status and type of payment until 1/1/2018, when they were in the process of applying to become a Medicaid provider. At that time, the clinic was given access to a private donation to cover abortion services for patients who were enrolled or applied for Illinois Medicaid. In practice, this meant that Illinois Medicaid-eligible patients at this facility had the cost of their abortion covered after 1/1/2018. Patients from Missouri received no coverage from Missouri Medicaid or the private donation.

This study was approved by the University of Illinois at Chicago institutional Review Board.

2. Measures

The primary outcome was trimester of termination. Gestational age was measured via ultrasound and reported in weeks. We estimated the one-way driving travel distance and travel time between a patient's residential zip code and the abortion facility using Stata's georoute command (Weber & Péclat, 2017), then categorized miles traveled to be consistent with other studies on travel for abortion services (Fuentes & Jerman, 2019; White et al., 2017).

3. Analysis

We used chi-square tests to examine associations between abortion trimester, patient characteristics, and year of the abortion. To evaluate the effect of one patient seeking multiple abortions, we conducted sensitivity analysis restricting the sample to all but the first abortion per person in the three year time period (Tables V and VI).

TABLE V: SENSITIVITY ANALYSIS 1: JOINPOINT REGRESSION ON PROPORTION OF ABORTIONS IN THE SECOND TRIMESTER FOR ILLINOIS OR MISSOURI-BASED PATIENTS AT ONE ILLINOIS ABORTION FACILITY, 2016-18.

Dataset[1]	Illinois slope (p value)	Illinois permutation (p values)	Missouri slopes (p value)	Missouri permutation (p value)
Multiple visits included	0.01 (0.009)	None (p values >0.2)	0.04 (0.01) -0.01 (0.07)	1 at March 2017 (0.003)
Only first visit per patient	0.01 (0.001)	None (p values >0.3)	0.05 (0.003) -0.02 (0.03)	1 at March 2017 (0.002)

[1]Dataset with unlimited number of visits per patient compared to only the first visit per patient.

TABLE VI: SENSITIVITY ANALYSIS 2: IMPACT OF ILLINOIS MEDICAID AND MISSOURI CLINIC CLOSURE VIA DIFFERENCE-IN-DIFFERENCES REGRESSION ESTIMATION

Dataset[1]	Difference between states of the difference between time points:	Difference in differences (β3) p-value:
Multiple visits included	3.87	0.02
Only first visit per patient	5.14	0.02

[1]*Dataset with unlimited number of visits per patient compared to only the first visit per patient.*

We used mixed effect logistical regression models to perform difference-in-difference estimation while accounting for the non-independence of multiple abortions by the same patient using random effects specifications. Difference-in-differences modeling controls for group-specific and time-specific effects by subtracting changes over time in the outcome in a comparison group with changes over the same period of time in the group of interest. This design controls for common time trends that may also affect the outcome and for differences between groups. In this case, the group of interest is abortion patients from Illinois and the comparison group is patients from Missouri attending the same clinic. These analyses were performed using Stata 13.1 (College Station, TX).

To identify changes in gestational age trends over time, we created joinpoint regression models in Joinpoint Regression Program 4.7.0.0 (Statistical Methodology and Applications Branch, Surveillance Research Program, National Cancer Institute, MD). Log-transformed proportion of abortions in the second trimester was the dependent variable, and month was the independent variable. This technique identifies the point(s) in time (or joinpoints) in which the trend significantly changes, then uses sequential permutation tests (Kim et al., 2000) to test whether including each joinpoint improves the model fit. Although the maximum number of possible joinpoints is determined *a priori* (we chose 5 based on our

number of time points), the best fit number of joinpoints and their placement are determined by the modeling software. Statistical significance was set at 0.05

C. Results

Table VII presents patient characteristics by state of residence. Patients from Illinois were significantly younger than those from Missouri. The mean age for Illinois patients was 26.63, statistically significantly lower than the mean in Missouri of 27.67 (t-test p-values <0.001); a higher proportion of Illinois patients were younger than 25 years than Missouri patients, while a higher proportion of Missouri patients were aged 35 or older than Illinois patients (Table VII). The majority of patients from both states were either Black or White, but there was a higher proportion of White patients to Black in Illinois compared to Missouri. Proportionally more patients from Missouri were married or had had an abortion in the past than patients from Illinois. Higher proportions of Illinois patients traveled more than 50 miles than Missouri patients. The one measured characteristic in which patients did not significantly differ by state was number of prior births (p-value=0.195).

Tables VIII and IX present differences in patient characteristics and gestational age over time by state of patient residence. Although a change in Illinois Medicaid coverage for abortion might be expected to alter who seeks or successfully accesses abortion services, there was little identifiable change in the demographic distributions of patients from Illinois before and after the change in coverage, except in ways that the characteristics of patients from Missouri (who experienced no change in coverage) shared: there were shared increasing proportions of medical abortion for first trimester patients (p-values <0.001), and decreasing proportions of patients who had ever had an abortion before (p-values <0.001), for both Illinois and Missouri patients. There was a statistically significant difference in

TABLE VII. DESCRIPTIVE CHARACTERISTICS OF PATIENTS OBTAINING ABORTIONS AT ONE ILLINOIS-BASED FACILITY, 2016-18, BY STATE OF PATIENT RESIDENCE (n=7,875)

Variable	Illinois Patients n (%)	Missouri Patients n (%)	X^2 p-value
Age (years)			0.000
<18	165 (5.15%)	173 (3.70%)	
18-24	1145 (35.74%)	1405 (30.08%)	
25-29	907 (28.31%)	1384 (29.63%)	
30-34	602 (18.79%)	962 (20.60%)	
≥35	385 (12.02%)	747 (15.99%)	
Race			0.000
White	1538 (48.27%)	1887 (40.64%)	
Black	1468 (46.08%)	2423 (52.19%)	
Asian	32 (1.00%)	101 (2.18%)	
Other	148 (4.65%)	232 (5.00%)	
Marital status			0.000
Single	2868 (90.39%)	4080 (88.41%)	
Married	221 (6.97%)	442 (9.58%)	
Other	84 (2.65%)	93 (2.02%)	
Past abortion			0.042
none	1685 (52.77%)	2345 (50.44%)	
any	1508 (47.23%)	2304 (49.56%)	
Number of prior births			0.195
0	1011 (31.68%)	1562 (33.60%)	
1	857 (26.86%)	1228 (26.41%)	
≥2	1323 (41.46%)	1859(39.99%)	
Abortion type and trimester			0.027
Medical ≤10 weeks	1273 (27.25%)	892 (27.84%)	
Surgical <13 weeks	2691 (57.61%)	1763 (55.02%)	
Surgical ≥13 weeks	707 (15.14%)	549 (17.13%)	
Total distance traveled (miles)			0.000
<25	1877 (58.60%)	2859 (61.22%)	
25-49	294 (9.18%)	759 (16.25%)	
50-100	373 (11.65%)	217 (4.65%)	
>100	659 (20.57%)	835 (17.88%)	

TABLE VIII. ILLINOIS PATIENT CHARACTERISTICS, TRIMESTER, AND ABORTION PROCEDURE TYPE BEFORE AND AFTER ILLINOIS MEDICAID COVERAGE OF ABORTION, n=3,673

Characteristic	Before Medicaid Coverage, 2016-17 n (%)	After Medicaid Coverage, 2018 n (%)	X^2 p-value
Age (years)			0.037
<18	115 (5.32%)	59 (3.90%)	
18-24	788 (36.45%)	515 (34.08%)	
25-29	611 (28.26%)	459 (30.38%)	
30-34	388 (17.95%)	310 (20.52%)	
≥35	260 (12.03%)	168 (11.12%)	
Race			0.092
White	1033 (48.05%)	681 (45.25%)	
Black	1001 (43.56%)	748 (46.82%)	
Asian	25 (1.16%)	9 (0.60%)	
Other	91 (4.23%)	67 (4.45%)	
Marital status			0.206
Single	1961 (91.08%)	1350 (90.73%)	
Married	146 (6.78%)	93 (6.25%)	
Other	46 (2.14%)	45 (3.02%)	
Past abortion			0.03
none	970 (45.01%)	733 (48.64%)	
any	1185 (54.99%)	774 (51.36%)	
Number of prior births			0.000
0	692 (32.13%)	398 (26.43%)	
1	583 (27.07%)	416 (27.62%)	
≥2	879 (40.81%)	692 (45.95%)	
Abortion type and trimester			0.000
Medical ≤10 weeks	544 (25.16%)	462 (30.58%)	
Surgical <13 weeks	1283 (59.34%)	766 (50.69%)	
Surgical ≥13 weeks	335 (15.49%)	283 (18.73%)	
Total distance traveled (miles)			0.859
<25	1303 (60.16%)	906 (60.00%)	
25-49	193 (8.93%)	144 (9.54%)	
50-100	236 (10.92%)	171 (11.32%)	
>100	430 (19.89%)	289 (19.14%)	

TABLE IX. MISSOURI PATIENT CHARACTERISTICS, TRIMESTER, AND ABORTION PROCEDURE TYPE BEFORE AND AFTER ILLINOIS MEDICAID COVERAGE OF ABORTION, n=5,328

Characteristic	Before Medicaid Coverage, 2016-17 n (%)	After Medicaid Coverage, 2018 n (%)	X^2 p-value
Age (years)			0.219
<18	120 (3.58%)	61 (3.09%)	
18-24	1014 (30.21%)	580 (29.41%)	
25-29	1019 (30.36%)	579 (29.36%)	
30-34	702 (20.92%)	412 (20.89%)	
≥35	501 (14.93%)	340 (17.24%)	
Race			0.627
White	1281 (38.38%)	780 (39.78%)	
Black	1827 (54.73%)	1048 (53.44%)	
Asian	72 (2.16%)	396 (1.84%)	
Other	158 (4.73%)	97 (4.95%)	
Marital status			0.074
Single	2988 (89.43%)	1706 (88.39%)	
Married	280 (8.38%)	192 (9.95%)	
Other	73 (2.18%)	32 (1.66%)	
Past abortion			0.000
none	1402 (41.94%)	963 (49.06%)	
any	1941 (58.06%)	1000 (50.94%)	
Number of prior births			0.143
0	1079 (32.30%)	627 (31.91%)	
1	911 (27.27%)	495 (25.19%)	
≥2	1351 (40.44%)	843 (42.90%)	
Abortion type and trimester			0.000
Medical ≤10 weeks	754 (22.47%)	666 (33.77%)	
Surgical <13 weeks	2089 (62.25%)	1017 (51.57%)	
Surgical ≥13 weeks	513 (15.29%)	289 (14.66%)	
Total distance traveled (miles)			0.245
<25	2112 (62.95%)	1230 (62.37%)	
25-49	515 (15.35%)	331 (16.78%)	
50-100	142 (4.23%)	95 (4.82%)	
>100	586 (17.47%)	316 (16.02%)	

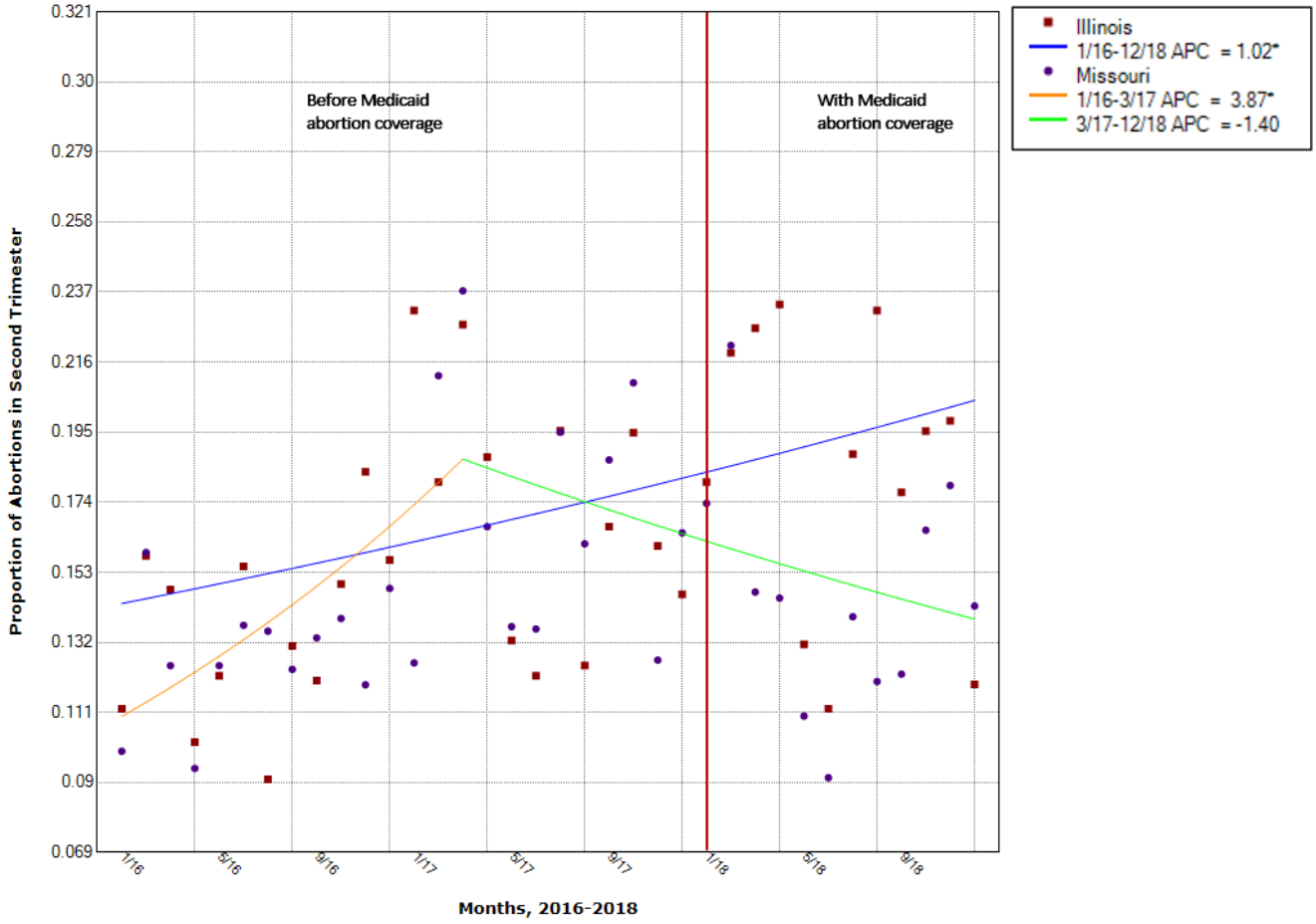
age before and after Medicaid coverage went into effect among Illinois patients, in that higher proportions tended to be aged 25-34 after coverage was available.

The number of abortions, and what proportion were in the second trimester, varied by month (Figure 3). There were changes in the proportion of second trimester abortions in both Illinois and Missouri-based patients over the included years. Each year the proportion of second trimester patients from Illinois increased, from 15.69% in 2016, 19.91% in 2017, and 20.78% in 2018. For Missouri patients, the proportion of second trimester abortions increased between 2016 (14.54%) and 2017 (19.20%), then decreased to 16.29% in 2018. We used joinpoint regression to model the trends by patient state of residence and test for changes in the slope (Figure 3). From January 2016 through December 2018 there was a significant upward trend of more abortions in the second trimester among Illinois patients (annual percent change: 1.0, p-value: 0.000). However, there were no significant changes in the trend (permutation test p-values> 0.23).

For patients residing in Missouri who received abortions at the Illinois facility there were two statistically significant trends over time: an increase of 0.38% each month (p-value: 0.01) until March 2017 at which point the trend changed (permutation test p-value 0.003) to a decrease of 0.14% (p-value: 0.07) from March 2017 to December 2018 (Figure 3). The slopes for Illinois and Missouri were compared for the pre-Medicaid coverage era (2016 to 2017) and were significantly different (test for parallelism p-value: 0.036).

The lack of a slope change for Illinois-based patients after abortions were covered for those eligible for Medicaid indicates that there was no measurable effect of financial coverage on proportions of second trimester abortions in the early stages of implementation (Figure 3). Additionally, the different slopes between Illinois and Missouri-based patients, and the change in slope among Missouri-based patients in March 2017, indicate that there was not a similar trajectory of change over time in the patient

Figure 3. Proportion of abortions in second trimester for Illinois or Missouri-based patients at one Illinois abortion facility, 2016-18



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: Illinois - 0 Joinpoints, Missouri - 1 Joinpoint. Rejected Parallelism.

populations in the two states even before Illinois expanded Medicaid payment for abortions on 1/1/2018.

Based on these diverging trends prior to the 2018 Medicaid policy change in Illinois, the primary assumption of difference-in-differences estimation, that of parallel paths, does not hold; as such, Missouri patients may not be an accurate counterfactual of what Illinois patients would experience had they not

had a change in Illinois Medicaid coverage. However, they can still act as a comparison group. We therefore compared the change over time in second trimester abortions between Illinois and Missouri patients in order to estimate the combined impacts of Illinois Medicaid coverage and Missouri abortion facility closure and enjoined bans on abortion after 8 weeks gestation. We calculated the percentage point change in second trimester abortions before expanded Medicaid coverage and after Medicaid coverage for patients from each state visiting the same clinic. There was an increase of 5.29% in second trimester abortions for Illinois patients before compared to after the Medicaid coverage expansion, and a decrease of 0.21% in second trimester abortions for Missouri patients for the same time points. We tested the statistical significance of the combined impact of Illinois Medicaid coverage and restrictions on Missouri abortion access using the logistic regression model:

$$Y=\beta 0 + \beta 1 Year + \beta 2 State + \beta 3 Year*State + \varepsilon$$

where Y represents the proportion of second trimester abortions each month; Year is coded 1 for 2018 and 0 for 2016-7, included to account for time; State is 1 for Illinois patients and 0 for Missouri patients, included to remove long-term state-specific differences, and the difference-in-differences estimate is given by β3. The difference of 3.87% in second trimester abortions between Illinois and Missouri patients due to some combination of Illinois Medicaid coverage and restrictions to abortion access in Missouri is not statistically significant (Table X). With patient characteristics (age category, race, marital status, number of past abortions, and miles traveled) added to the model to account for other factors associated with second trimester abortion, the adjusted difference-in-differences effect was 3.73% and was significant (p-value: 0.02).

TABLE X. IMPACT OF ILLINOIS MEDICAID AND MISSOURI CLINIC CLOSURE VIA DIFFERENCE-IN-DIFFERENCES REGRESSION ESTIMATION

State	2016-7 (Before Illinois Medicaid Coverage) Average % 2nd Trimester Abortions	2018 (With Illinois Medicaid Coverage) Average % 2nd Trimester Abortions	Difference between time points	Difference between states of the difference between time points:	Difference in differences (β3) p-value:
Illinois	15.49	18.73	3.24	3.87	0.35
Missouri	15.29	14.66	0.63		

D. Discussion

Abortion is overall a safe procedure, with a mortality rate for terminations in the first 8 weeks of pregnancy of 0.1 per 100,000 (Bartlett et al., 2004). However, this rate rises 38% with each week of gestational age, culminating in a mortality rate of 8.9 per 100,000 abortions for those that take place after 20 weeks gestation (Bartlett et al., 2004). In addition, earlier abortions are preferred by most abortion-seekers (Finer et al., 2006). Identifying patient characteristics associated with later abortions, and aspects of the health care system that could affect gestational age at termination can aid in further reducing the already low risk of abortion-related morbidity and mortality (Bartlett et al., 2004; Upadhyay et al., 2015).

The financial burden of paying for abortion services out of pocket may affect when or whether patients are able to have an abortion. This study found an increased proportion of abortions in the second trimester among Illinois-resident patients early in the aftermath of the expansion of Medicaid coverage. This finding may be due to the Medicaid policy change, but may simply be a continuation of a

pre-existing trend. Our use of a nonlinear analysis that could include variation by month, including the errors for each estimate at each time point, enabled us to avoid bias due to seasonality (Franklin et al., 2017) and to test for statistically significant change in the trend; we found no changes for Illinois-based patients in the overall study period. This may be because the Medicaid policy change in its first year of implementation did not alter gestational age at termination, or because simultaneous effects (in some patients, lower gestational age with financial coverage, in others, higher gestational age due to financial coverage) canceled each other out in the aggregated data.

Due to the facility's location near both Missouri and Illinois, we were able to compare any changes for Illinois patients after the Medicaid policy change to Missouri patients who had no Medicaid policy change. Since we had data on patients residing in both states who received care at the same location, we could control for state effects, time effects, and any differences that might have occurred due to facility-level effects, such as appointment availability or physician gestational age limits, since all these factors were shared by all patients. The adjusted difference-in-differences estimate indicates that some combination of Illinois Medicaid policy change and Missouri abortion restrictions were associated with a 3.73% increase in second trimester abortions.

This study also describes patient characteristics and the distance they traveled before and after the cost of services was covered for Illinois Medicaid enrollees. Although a change in financial coverage of abortion might be expected to alter who seeks or successfully accesses abortion services, there was little identifiable change in the demographic distributions of patients from Illinois before and after the change in coverage, except in ways that the characteristics of patients from Missouri (who experienced no change in coverage) shared.

Our findings should be interpreted in light of limitations of this study. We do not have information on patient characteristics such as ethnicity, primary language, nativity, substance use,

educational attainment, or income, any and all of which have been influential factors in studies of US abortion access and utilization. Although these abortion patients were similar to abortion patients nationally in regards to their general age distribution, marital status, and parity (Jerman et al., 2016), these findings may not be generalizable to all of Illinois or the US. It is possible that the yearly increase in second trimester abortions among patients from Illinois at this single clinic is unique to the facility studied. We evaluated only one year's worth of data after the change in Illinois Medicaid coverage for abortion services, and previous research on Medicaid coverage changes (albeit not related to abortion) has shown that increases in access manifest over time (Sommers et al., 2016). One year is a very limited time frame in which to judge the effect of a new health coverage policy. Additionally, we could have used different categorizations of gestational age, such as classifying second trimester abortions as those ≥14 weeks rather than ≥13 weeks, which could alter our findings.

More research is warranted to further evaluate the effects of full financial coverage of abortion for Illinois Medicaid enrollees. A more complete analysis could include all abortions in Illinois, and not just one facility, or could evaluate multiple years after the removal of restrictions of Illinois Medicaid coverage of abortion. Conducting a difference-in-differences analysis with a comparable counterfactual to Illinois Medicaid-enrollees would enable estimation of the impact Medicaid coverage alone. Evaluating rates of abortion-related complications may be worthwhile, since coverage may lead to pregnant individuals with medical conditions getting legal abortion care more quickly or conveniently. Additionally, understanding Medicaid enrollees' and providers' perceptions and experiences with Medicaid-covered abortion services is imperative. If insurance coverage and policies are not known and acceptable to the individuals involved in providing or seeking care, we can expect them to have little effect.

E. Conclusion

This study is the first a we are aware of to examine the impact of the removal of restrictions on Illinois Medicaid abortion coverage on women's abortion seeking behavior. We found that expanding the financial coverage of abortion services had little statistically significant effect on patient demographics or trimester of termination at one Illinois abortion-providing facility.

VII. DISCUSSION

A. Synthesis of Results

This study's aims were to: 1) describe the implementation of post-HB 40 Medicaid billing for abortion services at Illinois abortion-providing facilities and identify implementation barriers and facilitators; 2) describe the experiences of staff at abortion-providing, Medicaid-accepting facilities with Illinois Medicaid after HB 40; and 3) describe the effects of financially covered abortion for Medicaid enrollees on abortion patients' demographics, distance traveled, and gestational age. Based on interviews with key informants at the majority (83%) of abortion-providing facilities in Illinois, most facilities implemented changes to their billing and payment policies, procedures, and workforce in response to the removal of state Medicaid restrictions on reimbursement for abortion services. Administrators and staff at facilities perceived the eligibility policy change to be to the benefit of abortion patients but the financial detriment of abortion-providing facilities. Despite these concerns about the financial consequences and administrative burden of Medicaid participation, facilities applied to become Medicaid providers to fulfill their commitment to providing access to legal abortion. The main barriers to implementing payment changes were a lack of communication between departments within each facility, and issues related to the complexity of Medicaid forms, official communications, and policies. Applying to become Medicaid providers, as four abortion clinics or groups of clinics did in response to HB 40, was perceived as a confusing process made no easier by Medicaid systems and forms, which were not updated to reflect HB 40. In most cases, abortion-providing facilities overcame these barriers through individuals who championed the implementation and pushed through repeated rejections, and by collaborating in a facility-spanning workgroup that provided morale and tips for success. Less than two years after the Medicaid policy change, most abortion-providing facilities in the state had adapted to it. However, all facilities reported difficulties billing and getting reimbursed from Illinois Medicaid. This is consistent with research with abortion providing facilities in other states (Kacanek et al., 2010; Kimport &

Rowland, 2017) and with health care providers in general (Berman et al., 2002; P. J. Cunningham & O'Malley, 2008; Kusserow, 1992).

Medicaid coverage of abortion services should remove or at least ease financial barriers to accessing abortion services for enrollees in Illinois, since patients no longer have to pay out of pocket for care. Based on Bertrand et al. (1995)'s theory of access to family planning services, removing or at least easing financial barriers to care could be expected to increase access to abortion among Illinois Medicaid enrollees. This could have alternative effects on different groups of women. Without delays due to a need to save up, apply for charitable funds or loans, or ask friends or family for money, some women may be able to access care earlier (Bessett et al., 2011; Drey et al., 2006), thereby decreasing gestational age at termination in Illinois. Abortions at higher gestations are more expensive and may have been entirely inaccessible to lower-income patients previously (Upadhyay et al., 2014). Without that financial barrier, abortions at higher gestations may become accessible to Medicaid-eligible pregnant women, thereby increasing gestational age at termination in Illinois. Patient data from one facility in southern Illinois demonstrated no significant change in the time trend of gestational age among Illinois-based patients. This may indicate that financial coverage of abortion services for Medicaid-enrollees did not affect the timeliness of access to abortion, as I had hypothesized it would, or it may be an indication that the effects of removing financial barriers are in simultaneous but opposite directions, effectively canceling each other out in the aggregated data. However, the basic demographic of Illinois abortion patients before and after abortion services began being financially covered did not significantly change, which does not support that supposition that abortion had abruptly become accessible to a new group of people.

B. Public Health and Research Implications

This study has broad implications, both in practice and for research. For state legislatures contemplating passing similar expansions of abortion coverage by Medicaid, this may be more smoothly implemented if people familiar with abortion provision in that state are involved in crafting the policy

change. More than three months' notice before a policy changes, and official technical assistance with a policy change, could also assist in a swifter transition that required less dedicated staff time on the part of abortion providing facilities. Contact between clinical staff and knowledgeable Medicaid employees has been cited as a primary facilitator for correctly billing Medicaid for abortion services in other states (Kacanek et al., 2010), and key informants in this study were grateful for every handbook, guide, or tip. Based on the findings of this study, abortion providing facilities may become Medicaid providers and/or learn to correctly bill Medicaid for abortion services more quickly through the use of a single individual ready and able to dedicate themselves to the implementation process. As demonstrated in Illinois, forming and participating in a learning community can assist abortion providing staff in sharing knowledge and maintaining morale throughout a transition process.

In regards to research, this study identified several knowledge gaps. The qualitative findings are limited to the perspectives of those engaged in providing abortions in Illinois. Research into how the Medicaid policy came to be changed may illuminate opportunities to enact similar changes in other jurisdictions. Although there is existing research into how legislative change occurs, sensitive and polarizing topics such as abortion services may have unique paths from conceptualization to realization. The quantitative analysis evaluated only one year's worth of data after the change in Illinois Medicaid coverage for abortion services, and patients from only one clinic. Further research that includes more years or facilities is needed for a less limited analysis on the potential impact of financial coverage on gestational age at termination. Perhaps most importantly, research is needed that explores Medicaid-eligible people's perceptions and experiences with Medicaid-covered abortion services in Illinois.

C. Limitations and Considerations

The findings of the qualitative components of this study are limited to the perspectives of abortion-providing facility administration and staff. The attitudes and experiences of key informants may not be truly representative of each facility. Interviews were conducted approximately a year after the

implementation efforts began, hence key informants' descriptions of their perceptions and actions earlier in the implementation process may be subject to recall bias. The design, data collection, and code analysis were all conducted by a single researcher; to improve the credibility of the findings member checks were conducted.

The quantitative component of this study was limited in regards to information about patient characteristics that have been shown to be influential factors in abortion access and utilization, such as ethnicity, language, nativity, substance use, educational attainment, or income. Although these abortion patients were similar to abortion patients nationally in regards to their general age distribution, marital status, and parity (Jerman et al., 2016), these findings may not be generalizable to Illinois or the US. It is possible that the yearly increase in second trimester abortions among patients from Illinois at this single clinic is unique to the facility. Only one year's worth of data after the change in Illinois Medicaid coverage for abortion services was available for analysis, and one year is a limited time frame in which to judge the effect of a new health insurance policy.

VIII. CONCLUSION

In response to the removal of state Medicaid restrictions on reimbursement for abortion services, most abortion-providing facilities in Illinois implemented changes to their billing and payment policies, procedures, and workforce. Abortion-providing facilities were motivated in the implementation process by organizational and personal commitments to access to abortion. The barriers experienced by abortion-providing facility staff in the implementation process and participating in Medicaid in general were not unique to abortion-providing facilities, and were overcome by strategies such as dedicated champions and participation in a learning community that have also been used in other health care contexts. These facilitators were supported by the extent to which abortion-providing facilities were socially networked and supportive of each other. A comparison of Illinois and Missouri abortion patients at one Illinois facility before and after Illinois Medicaid removed funding restrictions did not identify a significant impact on demographics, travel, or gestational age. This study adds to the limited literature on abortion-providing facilities' perceptions of billing and payment in the United States. Further, it is the first to our knowledge to either describe the experiences and process of abortion-providing facilities becoming Medicaid providers, or to analyze the effects of expanding eligibility for Illinois Medicaid reimbursement for abortion services.

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APPENDICES

Appendix A

Experiences with Medicaid Reimbursement After a Policy Change, Protocol # 2018-1378

Exemption Granted

November 26, 2018

Cameron Estrich, MPH

Community Health Sciences

Phone: (312) 355-4425

RE: Research Protocol # 2018-1378
"Experiences with Medicaid Reimbursement After a Policy Change"

Sponsors: None

Dear Cameron Estrich:

Your Claim of Exemption was reviewed on November 26, 2018 and it was determined that your research meets the criteria for exemption. You may now begin your research.

Exemption Period:	November 26, 2018 – November 25, 2021
Performance Site:	UIC
Subject Population:	Adult (18+ years) subjects only
Number of Subjects:	120

The specific exemption category under 45 CFR 46.101(b) is: 2

You are reminded that investigators whose research involving human subjects is determined to be exempt from the federal regulations for the protection of human subjects still have responsibilities for the ethical conduct of the research under state law and UIC policy. Please be aware of the following UIC policies and responsibilities for investigators:

1. Amendments You are responsible for reporting any amendments to your research protocol that may affect the determination of the exemption and may result in your research no longer being eligible for the exemption that has been granted.

Appendix A (continued)

2. Record Keeping You are responsible for maintaining a copy all research related records in a secure location in the event future verification is necessary, at a minimum these documents include: the research protocol, the claim of exemption application, all questionnaires, survey instruments, interview questions and/or data collection instruments associated with this research protocol, recruiting or advertising materials, any consent forms or information sheets given to subjects, or any other pertinent documents.

3. Final Report When you have completed work on your research protocol, you should submit a final report to the Office for Protection of Research Subjects (OPRS).

Please be sure to use your research protocol number (2018-1378) on any documents or correspondence with the IRB concerning your research protocol.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact the OPRS office at (312) 996-1711 or me at (312) 355-2908.

Sincerely,
Charles W. Hoehne, B.S., C.I.P.
Assistant Director, IRB #7
Office for the Protection of Research Subjects

cc: Arden Handler
Nadine Peacock

Appendix B

Semi structured interview guide for Experiences with Medicaid Reimbursement after a Policy Change

Introduction

Hello. My name is Cameron Estrich, and I am a doctoral student in Public Health at the University of Illinois at Chicago. I am conducting a study on barriers to abortion access, and as part of that I'm interviewing people who are knowledgeable about billing and reimbursement procedures for abortion services. My goal is to understand how your facility handles payment, and whether that's changed in the last year. HB 40 went into effect on January 1, 2018, and since then all Medicaid-enrolled abortion patients can have their abortions covered. Hopefully, what you share today will help other abortion facilities in other states have an easier time transitioning if their state changes its Medicaid policies around abortion.

Consent

Before we get started, I just wanted to go over a few things. I am recording the interview, since the information you share is very important and I don't want to miss anything. Only I will have access to the audiotapes, and they will be kept in a secure location and then destroyed as soon as the research is done. If you would rather not be not recorded, I can take notes instead. Everything we say will remain confidential, and when I write up the policies and strategies used in facilities, I will never disclose your name or the name of this facility.

I expect this call to take between twenty minutes and an hour. Your participation in this interview is voluntary and you are free to not answer a question, or to leave the call at any time. (For UIC Employees only: Your participation in this research is in no way a part of your university duties, and your refusal to participate will not in any way affect your employment with the university, or the benefits, privileges, or opportunities associated with your employment at UIC. You will not be offered

Appendix B (continued)

or receive any special consideration if you participate in this research.) Do you agree to participate in this research?

If you think of anything you'd like to add or ask after we finish talking today, you can contact me by email at estrich@uic.edu, or by phone at 847-636-7610.

Do you have any questions before we get started?

Interview

So first off, because some strategies work well for large organizations but wouldn't work well for smaller ones, and vice versa, I'm going to ask some questions about your facility. Estimates are fine, I'm not looking for exact numbers.

1. Per week, about how many patients does your facility see for abortion services?
2. What proportion of your facility's abortion patients are enrolled in Medicaid?
3. About how many people work at your facility? About how many people handle billing and reimbursement related matters? (If several: do most of the people handling billing and reimbursement at your facility know each other? How long would you say most of those people have been with the facility? How many of those are manager-level or above?)
4. Is your facility affiliated with other abortion providers? Is it a member of any organizations like the National Abortion Federation? Do you have any formal or informal links to groups that provide funding, logistical support, or counseling to abortion patients?
5. And my last general question, is this facility currently enrolled as a Medicaid provider?

IF YES to Q5

In that case, I'd like to ask you some questions about how your facility handles payment for abortion services.

6. Before January 1st, 2018, did your facility bill Medicaid for abortion services?
   (if no: when did it start billing Medicaid for abortion services?)
7. Does it do so now?

Appendix B (continued)

IF YES to Q7

8. How did you find out that Illinois Medicaid would start paying for all abortions? (Probe: Did how you found out affect your perception of the policy?)
9. Who made the decision that this facility would bill Medicaid for abortion services? Do you know how that decision was made?
10. Did your facility prepare in any way for HB 40 to go into effect? For instance, telling patients about it, having a staff meeting about what to do, talking to other organizations about what will change, training staff how to appropriately bill for an abortion received for any reason, or anything like that? (Probes: Can you tell me about that training (when was it, who gave it to you, who else was trained, how long did training take?) Did [insert preparation type] cost the facility anything?)
11. Did your facility test how to bill Medicaid for abortion services on a small scale before rolling it out for all Medicaid enrollees?
12. Is there anyone who springs to mind as having been particularly helpful or influential in getting the facility ready to bill Medicaid for abortion services? (Probes: was this person a staff member at your facility, part of an affiliated organization, someone at Medicaid…?)
13. I noticed that the state's forms and handbooks for how to bill Medicaid haven't changed to reflect that you can bill for abortions for any reason. Has that affected your ability to figure out how to bill Medicaid, or train others to do so?
14. Since the facility started billing Medicaid for all abortions, has the workflow for abortion services changed much? How much time and effort do you devote to counseling patients, filling out paperwork for them, or handling payment for them compared to before your facility started billing Medicaid for abortions?
15. If you had a question or were unsure about how to handle something related to the new Medicaid policy for billing for abortion services, what would you do? Have you or someone else at your facility reached out to Medicaid or any other organization for billing support or with any questions?
16. Have you or anyone at your facility experienced any problems billing or getting reimbursed from Medicaid, either before 2018 or now?
17. Do you know of other providers in Illinois that are now billing Medicaid for abortions? Do you think other providers billing, or not billing, Medicaid has affected what your facility has chosen to do?
18. Overall, do you think the change to Medicaid policy has changed anything for your patients?

IF NO to Q5 and/or Q7

Appendix B (Continued)

6 alternate. If this facility has chosen not to accept Medicaid payment for any abortion services, why? (Probes: Who made that decision? Does the facility want to? What does the facility need to be able to bill Medicaid?) Did it ever bill Medicaid? Are there plans to become a Medicaid provider?

7 alternate. Do you know of other abortion providers in Illinois that are now billing Medicaid for all abortions? Do you think other providers billing, or not billing, Medicaid has affected what your facility has chosen to do?

Is there anything else you'd like to mention?

If you have any questions or think of anything else you'd like to share, you can contact me at estrich@uic.edu or by phone at 847-636-7610. Thank you so much for your time.

Appendix C

Protocol # 2019-0076, Access to Abortion Care in Illinois, 2016-2018

Approval Notice

Initial Review – Expedited Review

February 7, 2019

Cameron Estrich, MPH

Community Health Sciences

Phone: (312) 355-4425

RE: **Protocol # 2019-0076**
"Access to Abortion Care in Illinois, 2016-2018"

This research study is not eligible for an exemption because Hope Clinic for Women will release Protected Health Information (Dates of Birth) outside of their covered entity.

Please be reminded of the need to prospectively enter into a Data Transfer Agreement between Hope Clinic for Women and UIC through the UIC Office of Research Services. This is necessary because Hope Clinic for Women will be releasing Protected Health Information (Dates of Birth) to UIC.

Appendix C (Continued)

Please note that as per the revised Federal Regulations (2018 Common Rule) and OPRS policies your research no longer requires a Continuing Review. Although your research no longer requires a Continuing Review, you will receive annual reminder notices regarding your investigator responsibilities (i.e., submission of amendments, final reports, and prompt reports), and will be asked to complete an Institutional Status Report which will be sent to you via email every 3 years. If you fail to submit an Institutional Status Report, your research study will be administratively closed by the IRB. For more information regarding Continuing Review and Administrative Closure of Research visit: http://research.uic.edu/node/735.

Dear Cameron Estrich:

Members of Institutional Review Board (IRB) #1 reviewed and approved your research protocol under expedited review procedures [45 CFR 46.110(b)(1) and/or 21 CFR 56.110(b)(1)] on February 7, 2019. You may now begin your research.

Your research meets the criteria for approval under the following category [45 CFR 46.110 and/or 21 CFR 56.110]: 5

Please note the following information about your approved research protocol:

Protocol Approval Date:	February 7, 2019
Approved Subject Enrollment #:	12000
Performance Sites:	Hope Clinic for Women (Granite City, IL), UIC
Funding Source/Sponsor:	None

Appendix C (continued)

Research Protocol(s):

a) Access to Abortion Care in Illinois, 2016-2018 Version 1 01/04/2019

Recruitment Material(s):

a) Not Applicable

Informed Consent(s):

a) Waiver of Informed Consent granted under 45 CFR 46.102(f).

HIPAA Waiver:

The Board determined that this research meets the regulatory requirements for waiver of authorization as permitted at 45CFR164.512(i)(1)(i)(A). Specifically, that the use or disclosure of protected health information (PHI) meets the waiver criteria under 45CFR164.512(i)(2)(ii); the research involves no more than a minimal risk to the privacy of the individuals; the research could not practicably be conducted without the waiver; and the research could not practicably be conducted without access to and use of the PHI.

The type of protected health information (PHI) to be used in the research includes:

Date of Birth

→ Use your research protocol number (2019-0076) on any documents or correspondence with the IRB concerning your research protocol.

Appendix C (continued)

→ Review and comply with the policies of the UIC Human Subjects Protection Program (HSPP) and the guidance Investigator Responsibilities.

Please note that the UIC IRB has the right to ask further questions, seek additional information, or monitor the conduct of your research and the consent process.

Please be aware that if the scope of work in the grant/project changes, the protocol must be amended and approved by the UIC IRB before the initiation of the change.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact the OPRS office at (312) 996-1711 or me at (312) 355-2908.

Sincerely,

Charles W. Hoehne, B.S., C.I.P.
Assistant Director
Office for the Protection of Research Subjects

cc: Nadine Peacock
Arden Handler

VITA
Cameron Estrich

Education

School of Public Health, University of Illinois at Chicago 9/2014 to 5/2020
PhD candidate in Community Health Sciences
Dissertation: Abortion Care and Medicaid Policy in Illinois

School of Public Health, University of Illinois at Chicago 9/2009 to 12/2011
MPH in Epidemiology
Capstone: Sexually Transmitted Infections and Behavioral Risk Factors in Sexual Minority Women, 2009 to 2011

Vassar College 9/2001 to 5/2005
BA in Biology
Thesis: Constructing a variant of *Neisseria gonorrhoeae* without glucose-6-phosphate dehydrogenase

Professional Experience

Health Research Analyst: *American Dental Association—Science Institute*
1/2012 to present
Conduct systematic reviews and meta-analysis of oral health literature.
Design questionnaires and studies, collaborate with field partners to administer them.
Data analysis and report writing of internal and external clinical and laboratory research.
Write, update, and fact-check ADA policy statements, public statements and patient brochures.
Created and maintains a database with over forty years of health screening data; developing a clinical database.

Research Assistant: *University of Illinois at Chicago—Epidemiology/Biostatistics Department*
1/2016 to present
Created billing-claims-based contraceptive use evaluation tool, which has been used by multiple state health departments.
Wrote and administered web-based surveys of policy implementation for members of the Association of State and Territorial Health Officials' Increasing Access to Contraception Learning Community.
Co-developed, conducted, and analyzed qualitative interviews with state health officials about their implementation of contraception health care policy and systems changes.

Research Assistant: *Howard Brown Health Center—HIV/STI Prevention Department*
5/2010 to 3/2013
Transformed survey responses into quantitative databases for state and national reporting.
Advised on changes to behavioral surveillance survey design.
Analyzed demographic and behavioral factors for trends in STI/HIV diagnosis, and to identify at-risk groups.

Associate Technology Scientist: *Wrigley—Scientific Discovery Team*
5/2006 to 2/2011
Designed and conducted molecular biology experiments to elucidate the oral microbiome.

Designed and conducted human clinical trials to establish safety and efficacy of new products.
Identified, initiated contact with, and managed outside consultants for project research, and monitored their progress to ensure their results were consistent with sound principles and procedures.
Summarized industry-wide trends along with internal and external research for company-wide distribution.

Lab Technician: *University of Illinois Medical Center at Chicago—Molecular Pathology Lab*
10/2005 to 12/2005
Performed molecular biology diagnostic assays on patient blood samples.

Student Researcher: *Vassar College—Norrod Microbiology Laboratory*
9/2004 to 5/2005
Managed lab supplies, maintained equipment, and trained and supervised lab technicians.
Developed and implemented a research plan to test the effect of oxidative stress on *Neisseria gonorrhoeae*.

Summer Intern: *University of Chicago Hospital—McNally Molecular Cardiology Laboratory*
6/2004 to 8/2004
Tested effectiveness of gene therapy in myosin in cardiac tissue.

Professional Service

Abstract reviewer for APHA 2018, Minority Health in the Midwest Conference 2012
Manuscript reviewer for JADA, JDR Clinical and Translational Research, J Clin Epi, Health Promotion and Practice
Grant reviewer for Chicago Department of Public Health

Computer Skills

SAS, Stata, SPSS, R, HLM, REDCap, Dedoose, FluidSurveys, Qualtrics, Microsoft Office, Open Office, EndNote, and RefWorks

Teaching Experience

Women's Perinatal and Infant Health, CHSC 494, University of Illinois at Chicago School of Public Health, guest lecturer 9/2019
Evidence Based Dentistry Systematic Review workshop, American Dental Association, tutor 11/2018
Gender, Reproduction, and Violence, CHSC 594, University of Illinois at Chicago School of Public Health, guest lecturer, 9/2018
Public Health Concepts and Practice, Teaching Assistant, Fall 2014

Publications

Estrich, C.G., Lipman, R.D., Araujo, M.W.B. Population-based estimate of dental amalgam use in the United States.
Under review at *JPHD*

Estrich, C.G., DeSisto, C., Kroelinger, C.D., Goodman, D.A., Pliska, E., Mackie, C.N., Velonis, A., Uesugi, K., Waddell, L.F., Rankin, K.M. Lessons learned from efforts to increase access to long-acting reversible contraception: The many roles of social networking.

Under review at *SAGE Open*

Estrich, C.G., DeSisto, C., Uesugi, K., Akbarali, S., Pliska, E., Zeeck, E., Romero, L., Cox, S., Kroelinger, C., Velonis, A. Use of a learning community to expand access to contraception at the state and territory level.
Under review at CDC

Villa, A., Patton, L.L., Giuliano, A.R., Estrich, C.G., Pahlke, S.C., O'Brien, K.K., Lipman, R.D., Araujo, M.W.B. (2020). Summary of the evidence on the safety, efficacy, and effectiveness of human papillomavirus vaccines: Umbrella review of systematic reviews. *Journal of the American Dental Association.*

Lockhart, P.B., DeLong, H.R., Lipman, R.D., Abt, E., Baddour, L.M., Colvin, M., Sollecito, T., O'Brien, K., Estrich, C.G., Araujo, M.W.B., Carrasco-Labra, A. (2019). Effect of dental treatment before cardiac valve surgery: Systematic review and meta-analysis. *Journal of the American Dental Association, 150*(9), 739-747.

Estrich, C.G., Araujo, M.W.B., & Lipman, R.D. (2019). Prediabetes and diabetes screening in dental care settings: NHANES 2013 to 2016. *JDR Clinical & Translational Research*, *4*(1), 76-85.

Kroelinger, C.D., Morgan, I.A., DeSisto, C.L., Estrich, C.G., Waddell, L.F., Mackie, C., Pliska, E., Goodman, D.A., Rankin, K.M. (2019) State-identified implementation strategies to increase uptake of immediate postpartum long-acting reversible contraception policies. *Journal of Women's Health*, *28*(3), 346-356.

DeSisto, C.L., Kroelinger, C.D., Estrich, C.G., Velonis, A., Uesugi, K., Goodman, D., Pliska, E., Akbarali, S., Rankin, K.M. (2019). Application of the Consolidated Framework for Implementation Research to immediate postpartum long-acting reversible contraception policies. *Public Health Rep. 134*(2), 189-196.

Parker, W., Estrich, C., Abt, E., Carrasco-Labra, A., Waugh, J.B., Conway, A., Lipman, R.D., Araujo, M.W.B. (2018). Benefits and harms of capnography during procedural sedation: A systematic review and meta-analysis. *Journal of the American Dental Association*, *149*(1), 38-50.

DeSisto, C.L., Estrich, C., Kroelinger, C.D., Goodman, D.A., Plisa, E., Mackie, C.N., Waddell, L.F., Rankin, K.M. (2017). Using a multi-state learning community as an implementation strategy for immediate postpartum long-acting reversible contraception. *Implementation Science, 12*(1), 138.

Estrich, C.G., Gruninger, S.E., & Lipman, R.D. (2017). Rates and predictors of exposure to Legionella pneumophila in the United States among dental practitioners: 2002 through 2012. *The Journal of the American Dental Association*, *148*(3), 164-171.

Spomer, J., Estrich, C.G., Halpin, D., Lipman, R.D., & Araujo, M.W.B. (2017). Clinician perceptions of 4 hearing protection devices. *JDR Clinical & Translational Research*, *2*(4), 363-369.

Wright, J.T., Tampi, M.P., Graham, L., Estrich, C., Crall, J.J., Fontana, M., Gillette, J.E., Novy, B.B., Dhar,

V., Donly, K., Hewlett, E.R., Quinonez, R.B., Chaffin, J., Crespin, M., Iafolla, T., Siegal, M.D., Carrasco-Labra, A. (2016). Sealants for preventing and arresting pit-and-fissure occlusal caries in primary and permanent molars: A systematic review of randomized controlled trials. *The Journal of the American Dental Association, 147*(8):631-645.

Wright, J.T., Crall, J.J., Fontana, M., Gillette, J., Novy, B.B., Dhar, V., Donly, K., Hewlett, E.R., Quinonez, R.B., Chaffin, J., Crespin, M., Iafolla, T., Siegal, M.D., Tampi, M.P., Graham, L., Estrich, C., Carrasco-Labra, A. (2016). Evidence-based clinical practice guideline for the use of pit-and-fissure sealants. *The Journal of the American Dental Association, 147*(8), 672-682.

Smiley C., Tracy S., Elliot A., Michalowicz, B.S., John, M.T., Gunsolley, J., Cobb, C.M., Rossmann, J., Harrel, S.K., Forrest, J.L., Hujoel, P.P., Noraian, K.W., Greenwell, H., Frantsve-Hawley, J., Estrich, C., Hanson, N. (2015). Systematic review and meta-analysis on the nonsurgical treatment of chronic periodontitis by scaling and root planing with or without adjuncts. *The Journal of the American Dental Association, 146*(7), 508-524.e5

Smiley, C., Tracy, S., Elliot, A., Michalowicz, B.S., John, M.T., Gunsolley, J., Cobb, C.M., Rossmann, J., Harrel, S.K., Forrest, JL, Hujoel, PP, Noraian, KW, Greenwell, H, Frantsve-Hawley, J, Estrich, C, Hanson, N. (2015). Evidence-based clinical practice guideline on the nonsurgical treatment of chronic periodontitis by scaling and root planing with or without adjuncts. *The Journal of the American Dental Association, 146*(7), 525-535.

Wright, J.T., Hanson N., Ristic, H., Whall, C.W., Estrich C.G., Zentz, R.R. (2014). Fluoride toothpaste efficacy and safety in children under six years of age: A systematic review and clinical recommendations. *The Journal of the American Dental Association, 145*(2), 182-189.

Estrich C.G., Gratzer B., Hotton A. (2014). Differences in sexual health, risk behaviors, and substance use among women by sexual identity: Chicago, 2009-2011. *Sexually Transmitted Disease, 41*(3), 194-9.

Vogt, K., Lin, D., Estrich, C., Hanson, H. (2013). Evaluating the water tightness of powder-free natural rubber latex exam gloves following simulated clinical use: A pilot study. *American Dental Association Professional Product Review, 8*(1), 17-20.

Imbery, T., Geissberger, M., Hakim, F., Al-Anezi, S., Uram-Tuculescu, S., Gottlieb, R., Estrich, C. (2013). Evaluation of four dental spectrophotometers relative to human shade observance. *The Journal of the American Dental Association, 144*(10), 1183-1186.

Tiba, A., Zeller, G., Estrich, C., Hong, A. (2013). A laboratory evaluation of bulk-fill versus traditional multi-increment-fill resin-based composites. *The Journal of the American Dental Association, 144*(10), 1182-1183.

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Gruninger, S., Kozio,l N., Estrich, C. (2012). Safe injection practices: Protecting dentists, their staff and their patients. *American Dental Association Professional Product Review, 7*(3), 9-15.

Posters and Presentations

Estrich, C, Lipman, RD, Araujo, MWB. US Trends in Antibiotic Prescription by Dentists, 2002-2017.
Poster presentation to IADR/AADR/CADR 2020.

Estrich, C, Lipman, RD, Fontana, M, Krecioch, J, Araujo, MWB. Sociodemographic Variability in Proportion of Amalgam Restorations in the U.S.
Poster presentation to IADR/AADR 2019.

Estrich, C, Ziegler, KM, Lipman, R, Araujo, MWB. Antibiotic Prescribing Variation by Dental Specialty, Procedure, and Time.
Poster presentation to IADR/AADR 2018.

Estrich, C, Lipman, R, Araujo, MWB Exploring Dental Care Setting Utility to Screen for Diabetes.
Poster presentation to IADR/AADR 2018.

Estrich, C. Demonstrating How to Calculate Immediate Postpartum Long Acting Reversible Contraception (LARC) Implementation: A Tool for Medicaid Data.
Special workshop session to APHA 2017.

Estrich, C, Lipman, R, Parker, W, Araujo, MWB. Decomposition Analysis Identifies Areas for Reduction of Periodontal Disparities.
Poster presentation to IADR/AADR 2017.

Estrich, C. Social Networking as Implementation Strategy in Immediate Post-Partum Long-Acting Reversible Contraception Policy Change Efforts.
Oral presentation to ASTHO LARC Learning Community 2016.

DeSisto, C, Rankin, K, Estrich, C, Pliska, E, Akbarali, S, Mackie, C. Using a Multi-State Learning Collaborative as an Implementation Strategy for Immediate Post-Partum LARC.
Poster presentation to Dissemination and Implementation in Health 2016.

Estrich, C. The Role of Social Networking in Immediate Post-partum Long-Acting Reversible Contraception Access.
Oral presentation to CityMatCH Leadership and MCH Epidemiology 2016.

Estrich, C, Lipman, R. Risk of Exposure to *Legionella pneumophila* for Dental Practitioners.
Poster presentation to IADR/APR 2016.

Anglen, J, Gruninger, S, Chou, HN, Estrich, C, Staynor, L. Cumulative Mercury Exposure and Peripheral Nerve Function in a Sample of U.S. Dentists
Poster presentation to AADR 2016.

Estrich, C. Perceptions of Racial Inequality in Health Care.
Poster presentation to the 2015 Society for Epidemiologic Research Conference.

Caruso, T, Pleva, D, Estrich, C. Dental Back Pain By the Numbers.

Continuing education session at 2015 AADR.

Estrich, C. Musculoskeletal Complaints Among Dental Practitioners.
Oral presentation to the 2014 International Epidemiology in Occupational Health Conference.

Estrich, C, Vogt, K, Gruninger, SE. Dental Practitioners' Risk Factors for Exposure to *Legionella pneumophila*.
Poster presentation to AADR 2014.

Tiba, A, Areepong, D., Patel, A., Estrich, C., Zeller, G. Shear Bond Strength of Self-Etch Adhesive Cements on Alloys.
Poster Presentation to AADR 2014.

Estrich, C., Gratzer, B, Hotton, A. Sexual Orientation and Mental Health.
Oral presentation to the 2013 World Congress on Women's Mental Health.

Estrich, C, Gratzer, B, Hotton, A. STIs and Behavioral Risk Among Sexual Minority Women.
Oral presentation to the 2012 National STD Prevention Conference.

Hotton, A, Gratzer, B, Estrich, C, Mehta, S. Risks and Attributable Fractions for HIV Infection Among MSM At An Anonymous HIV Testing Clinic: Chicago, 2010-2011.
Poster presentation to the 2012 National STD Prevention Conference.

Estrich, C, Gratzer, B, Hotton, A. Venue-Based Comparison of STI Prevalence Rates Among MSM, 2009-2011.
Poster presentation to the 2012 National STD Prevention Conference.

Tian, M, Greenberg, MJ, Estrich, C. Interaction of MBE with Oral Bacteria and Salivary Protein.
Poster presentation to IADR 2010.

Dodds, M, Tian, M, Estrich, C, Greenberg, MJ. Compressed Mints Containing Magnolia Bark Extract Reduce Salivary *S. mutans*.
Poster presentation to IADR 2010.