

# Exhibit 386



## Review Article

# Ethical Diversity and the Role of Conscience in Clinical Medicine

Stephen J. Genuis<sup>1</sup> and Chris Lipp<sup>2</sup>

<sup>1</sup> University of Alberta, 2935-66 Street, Edmonton, AB, Canada T6K 4C1

<sup>2</sup> University of British Columbia, 2329 W Mall, Vancouver, BC, Canada V6T 1Z4

Correspondence should be addressed to Stephen J. Genuis; [sgenuis@ualberta.ca](mailto:sgenuis@ualberta.ca)

Received 14 May 2013; Accepted 9 October 2013

Academic Editor: J. P. Sturmberg

Copyright © 2013 S. J. Genuis and C. Lipp. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

In a climate of plurality about the concept of what is “good,” one of the most daunting challenges facing contemporary medicine is the provision of medical care within the mosaic of ethical diversity. Juxtaposed with escalating scientific knowledge and clinical prowess has been the concomitant erosion of unity of thought in medical ethics. With innumerable technologies now available in the armamentarium of healthcare, combined with escalating realities of financial constraints, cultural differences, moral divergence, and ideological divides among stakeholders, medical professionals and their patients are increasingly faced with ethical quandaries when making medical decisions. Amidst the plurality of values, ethical collision arises when the values of individual health professionals are dissonant with the expressed requests of patients, the common practice amongst colleagues, or the directives from regulatory and political authorities. In addition, concern is increasing among some medical practitioners due to mounting attempts by certain groups to curtail freedom of independent conscience—by preventing medical professionals from doing what to them is apparently good, or by compelling practitioners to do what they, in conscience, deem to be evil. This paper and the case study presented will explore issues related to freedom of conscience and consider practical approaches to ethical collision in clinical medicine.

*“A judgement of conscience may be wrong, but it cannot be put right by setting it aside”*  
FA Curlin

## 1. Introduction

The practice of contemporary medicine is changing. With diverging views about what constitutes acceptable and professional behavior, one of the most formidable tasks facing the medical community is how to respond to ethical diversity within its membership. Issues of conscience are becoming increasingly problematic for healthcare personnel as nurses, physicians, and other members of the healthcare team endeavor to interact with the expanse of emerging medical technologies, and to respond to evolving expectations that involve more than just treating disease and alleviating suffering [1]. When making clinical decisions, physicians are now tasked with balancing diverse priorities such as promoting wellness, conserving resources, measuring up to continuously evolving standards, making decisions about quality-of-life, engaging in advocacy, and changing harmful patient behaviours [2].

Furthermore, juxtaposed with waning respect for the wisdom of individual conscience and personal ethical conviction, pressure from sources external to clinical healthcare (including some lawyers, bioethicists, and politicians) is now being exerted on medical professionals to unquestioningly act in allegiance with peer standards and professional governance. While acting in good conscience represents the essence of individual integrity for some practitioners, going “against the flow” due to conscientious or ethical conviction is increasingly portrayed as “unprofessional” and disparagingly depicted as acting according to personal preference. There is uncertainty as to whether escalating ethical diversity within contemporary medicine is an asset or a liability to cohesion with the medical community and to the provision of optimal clinical healthcare.

Amidst the emerging landscape of diverse and often conflicting ethical perspectives, this paper will (i) briefly address the concept and the role of personal conscience;

(ii) survey the existing literature on conscience-related issues in healthcare; (iii) describe dichotomous perspectives on the installation of measures to secure “freedom of conscience;” (iv) explore practical workplace issues and approaches for health providers; (v) advance benefits and risks of conscience rights for health professionals; and (vi) provide a case study highlighting some of the challenges associated with making a dissenting conscience decision.

Fundamental guiding questions for this paper include the following.

- (i) When health providers disagree with their patients, colleagues, or regulatory professional bodies about the suitability of specific types of care, what standard should provide a point of reference for the practitioners’ ethical course of action?
- (ii) Is it acceptable to punish health providers (professional discipline, loss of privileges, loss of job, etc.) because of their commitment to act in accordance with their firmly held ethical position?
- (iii) What impact does acquiescence to regulatory edicts have on health professionals who hold ethical or moral reservations about existing clinical standards/guidelines?

*1.1. What Is Conscience?* The Greek etymology of conscience literally means “with knowledge” [3]. The Oxford dictionary describes conscience as “a person’s moral sense of right and wrong, viewed as acting as a guide to one’s behaviour” [4]. Thus, conscience may be simply understood as a metaphysical guide that acts in a judicial way to direct a person’s actions. In day-to-day living, conscience seems to be closely related to a person’s beliefs or convictions about actions that are deemed morally right or wrong [1].

Despite the prevalence and fervor with which conscience issues are explored in medical writing [5–7], a clear definition of conscience in healthcare settings is lacking. In the medical literature exploring conscience issues, few authors explicitly define terms. Some medical ethicists, however, consider conscience as having two main components. First, a person’s conscience is rooted in a fundamental responsibility to consider all situations within a framework of ethical obligation [8]. Second, this responsibility leads to judgments and reasoning about the types of actions and behaviours which characterize a moral life [1]. Rather than the reductionist perspective that conscience is a mystical intuition based on emotions, feelings, or preferences, conscience represents the decision-making capacity of the human mind founded on a desire to live an upstanding and honourable life which promotes good for oneself and for others [1].

Authors exploring the notion of conscience use a variety of terms to characterize the multidimensional role of conscience in one’s life [1, 9–11]. Conscience has been described in its role as a means to preserve integrity or ethical wholeness (“perfective conscience”) [12], and is used to monitor how potential decisions resonate with, or “protect” one’s moral framework. Other authors describe the role of conscience both retrospectively (looking back on previously

made decisions or actions) and prospectively (assessing whether a proposed action would compromise one’s moral integrity) [1]. Human conscience, most succinctly described, seems to involve a moral decision-making faculty, influenced by a rational perception of the observable world which is both reflective and reflexive [10]. The reflective nature of conscience scrutinizes past, present, and future decisions, while the reflexive component provides instant feedback in the form of internal dissonance or discomfort when an individual is compelled to choose a potentially problematic or immoral decision or action.

*1.2. Present-Day Ethical and Conscience Dilemmas in Healthcare.* Dilemmas of conscience in medicine are increasingly encountered by healthcare providers from a spectrum of clinical disciplines. From our survey of the literature as well as through personal experience, a few examples of the myriad situations that involve ethical consideration with patients, peers, or regulators are presented (Table 1).

## 2. Background on Issues of Conscience in Healthcare

The vast and expanding scope of medical practice combined with increasing diversity of opinion within modern society has led to escalating public discussion of conscience issues in healthcare [6, 27–29]. Various terms including “moral stress” [30], “moral distress,” and “ethical distress” [31] have been used to describe the existential anguish experienced by health professionals when facing challenging ethical situations. In the academic and grey literature, the majority of conscience issues are discussed somewhat imprecisely within two general domains: (1) stress of conscience and (2) freedom of conscience.

*2.1. Stress of Conscience.* The majority of research relating to stress of conscience refers to situations where health providers are unable to fully address the needs or challenges of those receiving care [32, 33]. These factors may lead to a “troubled conscience” [11], or “stress of conscience” [32] among practitioners as a consequence of failure to attain what their conscience expects or demands of them to do [33].

Analyses of the impact of conscience stress within healthcare settings [34, 35] have generally tended to focus on outcomes for healthcare systems and patient recipients rather than for medical providers. However, some nursing research has been done through validated questionnaires in fields including psychiatry [36, 37], geriatric care [38–41], neonatal nursing [42], and intensive care [43–45]. These surveys assess personnel perception of conscience [33], stress of conscience [32, 34, 35], and the impact of ethical stressors on healthcare providers and on patient care [32, 33]. The research consistently supports the observation that elevated stress of conscience is a contributor to nursing burnout [32, 34–36, 40, 46], job dissatisfaction [41], and the provision of suboptimal patient care [36].

Although the impact of stress of conscience among physicians is inadequately researched, there are some preliminary

TABLE 1: Examples of clinical situations that may result in ethical tension or conscientious refusal.

Dilemma	Situation
(i) Government pressures physician to perform punitive amputation	Orthopedic surgeon told by Afghani government officials to amputate a healthy man's leg as a punishment for theft [13].
(ii) Physician pressured to perform CPR	In a case situation consistently deemed medically futile, a clinician refuses to prolong dying, squander resources, and extend patient suffering by repeatedly commencing CPR [14].
(iii) Peer pressure for physician to conform to standard of care guidelines	A doctor is derided for using evidence-based nutritional and environmental interventions where such therapies deviate from standard clinical practice [15, 16].
(iv) Patient requests physician to complete paperwork so parents can travel for cultural ceremony	Parent requests official approval from a physician for their daughter to travel to Africa in order to undergo a ritual female genital mutilation ceremony [17].
(v) Physician asked for advice about suitability of abortion	Patients seek advice from a rural physician on suitability and wisdom of having an abortion after discovering that the developing fetus has cystic fibrosis [18].
(vi) Physician asked to determine fetal gender	Request that the physician determine fetal gender at 12 weeks gestation with the expressed aim of choosing female feticide if the fetus is not male [19].
(vii) Patient request for assisted suicide	An elderly patient adamantly requests that a physician prescribe a lethal dose of sedation [20].
(viii) Peer pressure to increase hospital efficiency at the cost of patient care	A physician is unable to provide optimal care for seniors with severe dementia as a result of explicit institutional economic constraints [21].
(ix) Young patient requests tubal ligation	Following the delivery of a stillborn child, a 19 year old with no live children determinedly requests an irreversible tubal ligation procedure [22].
(x) Patient request for genital reconstruction	Adult female requests a re-infibulation procedure (reconstruction of ceremonially cut female genitalia) following vaginal childbirth [23, 24].
(xi) Patient demands narcotic analgesia	Physician is suspicious of narcotic abuse with the patient [25].
(xii) Parents of child refuse consent for life-saving blood transfusion	Physician considers legal measures to save the life of the child through blood replacement [26].
(xiii) Parents of young woman request virginity certificate	Based on personal moral beliefs, the clinician refuses to exam the hymen of the young woman-despite explicit consent from the young woman herself.
(xiv) Patient demands respect for personal autonomy in choice of physician	A pregnant woman refuses emergency obstetrical care based on the clinician's gender and race. She demands referral to a female physician.
(xv) Patient requests distortion of truth	A terrified immigrant woman implores her family physician to lie to her husband regarding the nature of a previous surreptitious medical visit.

studies which document moral distress and the associated burden of anguish resulting from certain ethical situations among clinicians in nephrology [47], podiatry [48], general medicine [49], and critical care medicine [50, 51]. Research confirming stress of conscience has also been conducted among medical students and residents [52–54] indicating the commonality of this experience during medical training. Long-term sequelae of sustained or repetitive conscience stress in physicians and medical trainees have not been sufficiently investigated to date. Anecdotally, many physicians find the increasing prevalence of ethically challenging situations to be an unwelcome burden, with some practitioners modifying their professional duties or leaving positions to avoid such encounters. Some practitioners avoid serious ethical decision-making by referring to, and abiding by, the dictates of designated ethical experts such as ethicists or ethics committees.

**2.2. Freedom of Conscience.** The second context where conscience issues arise involves direct situations of ethical collision; in these situations a healthcare provider is asked or expected to participate in a specific action he or she deems to

be ethically wrong. This second connotation of the expression “conscience issues” evokes phrases such as “freedom of conscience” (FC), “conscientious objection,” “conscience rights,” and “conscience clauses” [5, 10, 27, 55–57] along with moral and ethical distress. The remainder of this paper will focus on exploring issues related to FC (freedom of conscience).

Political, legal, and legislative events in recent decades have brought conscience issues to the forefront. Not only have well-known politicians discussed the issue of conscience legislation in election platforms [28, 29], but legal and legislative bodies have begun to pass judgments on this issue. For example, in a recent ruling from the College of Physicians and Surgeons of Ontario (CPSO), physicians were clearly warned that they could be found in violation of the Ontario Human Rights Code if, based on moral or religious beliefs, they refused to provide a service to a patient [58].

This type of authoritarian approach to conscience rights has begun to be implemented in various jurisdictions and domains. For example, financial penalties and/or imprisonment exist for health providers who act contrary to public policy in the Philippines [59, 60], and a proposed ruling by the US Department of Health and Human Service

would enforce employers to pay for employees' contraception regardless of employers' moral or religious objections [61]. Yet, while issues of conscientious objection are engendering greater significance in political and legal proceedings [62–64], little attention has been applied to understanding how enforced restriction of conscience rights might affect individuals navigating situations of ethical collision, and specifically to understanding the short- and long-term impacts of coerced complicity in healthcare settings.

A number of surveys have been conducted to determine sentiment and support for the principle of FC in healthcare settings [6, 7]. While medical students and nurses have been polled on this matter [65, 66], the broadest discussion has come from clinicians and bioethicists who have theorized about and explored both the importance of conscience rights [10, 67, 68] and the associated hazards of such rights [27, 55, 57]. The perspectives vary considerably.

### 2.3. *The Polarizing Status of Conscience Matters in Medicine.*

The intense debate about the benefits and hazards of securing conscience rights highlights a strong polarity within the healthcare community. On one hand, some physicians, ethicists, policy-makers, and lawyers adamantly object to FC legislation and argue that every physician should be professionally required to carry out legal medical services at a patient's request, regardless of the physician's ethical convictions or religious beliefs [55–57, 69–76]. On the other hand, supporters of conscience rights argue that absolute regulation requiring professionals to be willing to act contrary to their own personal values is imprudent, prejudicial, and unacceptable.

*2.3.1. Opposition to Freedom of Conscience Legislation.* Those opposed to a sweeping policy to secure FC rights contend that such liberty erodes patient autonomy and the societal role or professional obligations of the physician [56, 69, 76]. Many ethicists and lawyers argue that conscience clauses lead to dysfunctional healthcare delivery and compromise the quality of patient care [55, 57, 70–75]. Other arguments against FC legislation include the assertion that no patient should ever be obstructed from receiving legal medical care based solely on a physician's personal values [77]. Not only would this obstruction violate patients' autonomy in choosing the type of health care services they deem most appropriate to their own needs [71], but FC opponents also contend that this level of legislation regresses medicine into a paternalistic system where the doctor is the ultimate decision-maker rather than the patient [57, 78].

In addition, it has been contended that FC promotes an attitude of unprofessionalism amongst those who take advantage of the freedom and privilege it offers [57]. It is suggested that FC legislation may encourage physicians to provide healthcare based solely on individual preferences or whims, rather than broader public interests. Immanuel Kant's universal applicability principle argues that there is only a single categorical imperative, which is to "act only in such a way that you can will that the maxim of your actions should become a universal law" [79]. Kant's contention is that

broader public interest should trump individual preference; he proposes that it is better for one person to experience internal friction than for the whole state to be disrupted. A study of this ideology has led some analysts to conclude that physicians should divorce themselves from their conscience and beliefs about what is good and right, and execute their duties as "neutral arbiters of medical care" [71].

Furthermore, from a practical standpoint, FC legislation would seemingly complicate the healthcare system and compromise any united standard of care [74]. Patients who request or require urgent care could be refused assistance by physicians maintaining a conscientious conviction against such type of care, and thus hospital administrators and patients would have to search for other health providers to meet patients' needs [57]. In addition, it is alleged by some that once religious and moral objections significantly affect medical care, society will be impaired in its ability to make science-based decisions and informed social progress, an example of such an allegation is the current move in many jurisdictions by those with moral misgivings, to obstruct the legal incorporation of physician-assisted death [76].

It is also assumed by many FC opponents that conscientious conviction usually represents religious affiliation, and thus they assert that religious edicts and influences have no claim in the marketplace of secular healthcare [57, 69, 80]. Dogmatic admonitions highlighting this position have been issued recently; for example, an edict by a state human rights body warned that doctors, as providers of services that are not religious in nature, must essentially "check their personal views at the door" in providing medical care [81]. The American College of Obstetrics and Gynecology also provided the recommendation recently that "Conscientious refusals should be limited if they constitute an imposition of religious or moral beliefs on patients" [82].

Some ardent adherents of this perspective also state that physicians who refuse to comply with legally accepted and established medical treatments are not qualified to fulfill the role of a professional within the medical community, and should therefore be asked to find a more suitable profession or medical specialty with no threat of conscience dilemmas [27, 55, 57, 71]. For example, an article in a prominent Canadian medical journal asserts: "Physicians who feel entitled to subordinate their patient's desire for well-being to the service of their own personal morality or conscience should not practice clinical medicine" [83].

*2.3.2. Support for Freedom of Conscience Legislation.* Individuals and groups representing the other side of the debate raise various issues and provide refutations. Many physicians, philosophers, and medical trainees are in full support of FC for health professionals [5, 18, 68, 84], arguing that preserving conscience rights is in the best interests of healthcare providers, patients, and society. Some interpret Kantian-based philosophy to suggest that if successive physicians lose individual liberty of conscience and are morally compromised because of authoritarian dictates, the end result will be a diminishing of collective professionalism and physician morale, leading to inadequate patient care [22].

Proponents of FC advocate that ethical decisions are pervasive in clinical medicine, and that making conscience-based decisions goes far beyond personal preference and represents the essence of what health providers actually believe is best for patients [85]. It is argued from this vantage point that physicians who hold to their conscience values when faced with ethical distress maintain personal integrity and moral sensitivity, thus fostering a culture of respectful consideration which promotes patient well-being and furthers ethically-cognizant medical advancement [10, 86]. Trespassing the bounds of personal conscience, they contend, results in severe compromise to individual self-respect, integrity, and personal job satisfaction [10, 87]—qualities integral to physician well-being.

Conscience supporters generally reject the notion of a distinctive “professional conscience” separate from a “personal conscience.” Rather, practitioners are deemed to have only one conscience; those in favour of FC assert that the notion of maintaining modifiable contradictory values depending on circumstances defies the definition of “conscience.” Philosophic literature is also used by FC advocates to add credence to their arguments. Contemporary moral philosopher Alasdair MacIntyre contends that “encouraging physicians to separate themselves and their values from the roles they perform, is a recipe for the dissolution of character” [88]. Compromise of personal moral integrity, of any kind or nature, will inevitably lead to an erosion of ethical behaviour—a prospect not conducive to optimal provision of healthcare [86].

In addition, some argue that conscience provides an invaluable intrinsic checkpoint in urgent ethical dilemmas [10]. This checkpoint serves as an indispensable aid to practitioners facing acute care dilemmas in the intensive care unit or emergency department. When confronting a pressing ethical dilemma requiring immediate decision-making; for example, a physician may have little else to turn to other than conscience.

While antagonists of FC may argue that conscience is an impediment to patient-centred values and patient experience [57, 69], proponents argue otherwise. Supporters often contend that FC promotes open, transparent physician-patient relationships and engenders patient advocacy and trust. At the core of an attitude of advocacy for patients is the physician-patient relationship and unadulterated trust in the caregiver. Fundamental patient-centered values include honesty, faith that the caregiver will always act ethically and do what is best for the patient, and security that the clinician will never agree to covertly harming the patient. Physicians who possess self-awareness of their own values and beliefs are able to recognize and communicate their own biases [86]. This open communication fosters honesty and allows patients to objectively decide whether their physician is a trustworthy and competent practitioner who is able to provide high-quality health care services. It is unlikely that individual patients or society would support a situation in which physicians were being coerced to hide their convictions, making decisions they felt were morally wrong or unethical, or failing to act in what they perceived to be their patients' best interests.

It is claimed that FC also facilitates public advocacy for disadvantaged individuals and groups [10]. Public advocacy generally involves personal risk to the advocates as they are resisting the status quo and often contending against vested interests that are alleged to be subversively harmful to patient and societal wellbeing. With allegations of physician intimidation in some jurisdictions [89], protection of conscience rights permits a culture of advocacy in which health providers are given the liberty to be patient advocates in defiance of authoritarian dictates. A recent public event serves to illustrate unavoidable consequences of removing FC rights; a conscientious physician was severely reprimanded by authorities for speaking out against industrial practices he claimed were harming the environment and endangering the health of a local community [90]. While it has been alleged that conscience-based physicians are simply serving their own personal interests, those acting from a perspective of deeply-seated conscience conviction often manifest considerable courage and honorable intention as they serve others and sometimes endure personal risk.

Preserving FC promotes the physician as an independent, objective, and autonomous caregiver rather than an instrument of the state [87]. History is rife with instances where delivery of independent, ethical medical care was compromised with disastrous results. The atrocities committed by Nazi physicians and, more recently, those of some American physicians working in Iraq and Afghanistan are testaments to the potential brutal activity that can occur when governments stifle the consciences of physicians [68]. Furthermore, humanity suffers when physicians become silent soldiers marching to the beating drum of an oppressive regime [91]. A widespread dismissal of conscience socializes physicians to be muted participants in atrocities and suboptimal care rather than advocates of health and humanity [68]. While this sort of regime seems foreign to North American medicine, physicians are increasingly facing less and less emphasis on good care and virtuous behavior [86, 87] and more emphasis on adhering to external guideline panels.

As the practice of medicine necessarily involves the incorporation of morals and ethics, varying interpretations of values should be expected and tolerated within any diverse group of professionals [87]. Even a misguided conscientious objection may demonstrate ethical leadership and integrity [86]. Furthermore, advocates for conscience rights often remind critics that modern medicine allegedly encourages the critical analysis of status quo ideas and practices through thoughtful reason and ingenuity. In fact, the major historical advances in medicine throughout time have unfailingly been the result of thoughtful dissonance and the challenging of existing practices in an attempt to change course [22]. Encouraging ingenuity, critique, and creativity yet squashing nonconformity is argued by FC advocates to be oxymoronic.

Furthermore, many objections to specific interventions and the corresponding desire to secure FC are based on issues of quality of care, scientific credibility, human rights, environmental implications, and preservation of dignity rather than exclusively religious or ideological rationale. To illustrate this, it is important to understand the concept of “standard of care” (SOC). Individual physician behavior is often measured

against the grid of clinical practice guidelines, which are medical practice directives delineating the SOC to guide physicians about what is expected in specific clinical situations. It is often assumed that SOC proclamations and clinical practice guidelines represent informed science, cutting edge research, and up-to-date information in the scientific realm. The reality, however, is that knowledge translation in science is notoriously slow and SOC provisions are often influenced by agenda-driven vested interests and are often out of date with what emerging research is demonstrating [92–96]. This lethargy of knowledge translation prompted a Nobel Prize winner to comment: “A new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it.” [97] In fact, conscientious individuals may express their iconoclastic views because they perceive that a strong stand is required against vested interests, against harmful interventions, and against entrenched patterns of misguided practices that are not in the best interests of patients, the medical profession, or society as a whole.

Finally, there exists an allegation that certain vocal opponents of FC are individuals and groups with vested interests using the conscience debate to pursue political gain; these parties have also been accused of using the conscience debate to intimidate and bully practitioners to comply with their personal or group ideologies. For example, consider the acrimonious issue of termination of pregnancy: some sources in the 1960s advocated for FC for abortion providers who defied the existing law and SOC at the time, yet some of these same sources have morphed into principal antagonists against FC for those who oppose the current law which permits such procedures. In 1965, for example, an article entitled “*Free the Doctor*,” published in a prominent Canadian newspaper (*Globe and Mail*), demanded liberalization of the abortion law “to enable doctors to perform their duties according to their conscience and their calling” [98]. After abortion was legalized in Canada, however, this same erstwhile public defender of FC advocated on the same issue that all public hospitals should be denied any choice on this issue for any reason—conscience or otherwise [98]. Some agree with conscience choice only to the degree that the choice conforms to their own agenda—the antithesis of what choice actually is. This type of apparent inconsistency has led to suspicions that the issue for some is not FC at all, but of using whatever means necessary to achieve their own agenda.

### 3. Making Decisions in the Face of Ethical Collision

In light of opposing viewpoints regarding the legitimacy of FC, many physicians find themselves at a moral impasse. Does FC legislation promote discrimination against patient interests and undermine the foundations of modern medicine [57], or are FC declarations integral to ethical healthcare? And more practically, how should individual physicians proceed when faced with ethical situations in which they are called upon to act against their beliefs and their judgment?

Prior to the 1960s, physicians routinely turned to specific codes of ethics as a starting point when faced with ethical dilemmas. For many centuries, the medical community ascribed credence to the venerable Hippocratic Oath, or related ethical principles, as universal points of ethical reference. However, with changes in social mores in the latter aspect of the 20th century, escalating criticism mounted against the Hippocratic tradition, claiming the vows represented a paternalistic “doctor knows best” approach to medicine [78]. This oath was consequently rejected by various administrative bodies, with the assertion by some leading ethicists that physicians who refuse to break their Hippocratic oath are patriarchal or even “genuinely wicked” [99, 100].

*3.1. Contemporary Codes of Ethical Conduct.* Following the demise of the Hippocratic Oath as the ethical standard in medical practice, no single or consistent normative ethical standard has been established to take its place. Currently, there are regional ethical codes of behavior as well as ethical principles inculcated into the hearts and minds of medical trainees by their educational institutions. Such ethical standards have sometimes received diverse interpretations in practical settings.

Regional and international codes of ethics often originate from organizations such as district or provincial medical regulators, national bodies such as the Canadian Medical Association (CMA), and groups such as the World Medical Association (WMA). The CMA Code of Ethics, for example, contains 54 statements relating to physicians’ fundamental responsibilities to patients, to society, to the profession, and to themselves [101]. The WMA Code of Medical Ethics offers 22 duties of physicians in relation to clinical practice, to patients, and to colleagues [102]. These statements are instructive in helping an independent physician make ethical decisions and they serve as guiding principles in situations that cause a health professional to encounter a conscience dilemma (Table 2). In disciplinary proceedings, such codes can be used as a standard template against which to measure the conduct of an individual health provider.

While such ethical guidelines are useful as general principles, they do not necessarily provide consistency of care between clinicians; interpretations may differ and subsequent courses of action may vary in accordance with diverse opinions about integrity, best interests, and human rights. For example, one physician may refuse to violate his or her beliefs about a particular intervention claiming it would endanger professional integrity, while another physician may experience no internal disquiet or angst over performing the same intervention—either because he or she does not hold convictions against such procedures, or because he or she is convinced that acceding to patient requests is fundamental to professional integrity. Some argue, in fact, that professional integrity may require the repression of the practitioner’s personal human rights [75, 103]. These differences highlight that there are varied interpretations of medical ethics—a reality to be expected in a professional vocation with immense moral and ethical responsibility [87]. Some have argued that within a cultural milieu of plurality,

TABLE 2: Excerpts from the Canadian Medical Association [101] and World Medical Association [102] Code of ethics.

(i) Consider first the well-being of the patient (CMA # 1)	(i) A physician shall always exercise his/her independent professional judgment and maintain the highest standards of professional conduct (WMA # 1.1)
(ii) Practise the art and science of medicine competently, with integrity and without impairment (CMA # 5)	(ii) A physician shall be dedicated to providing competent medical service in full professional and moral independence, with compassion and respect for human dignity (WMA # 1.4)
(iii) Resist any influence that could undermine your professional integrity (CMA # 7)	(iii) A physician shall respect the right and preferences of patients, colleagues, and other health professionals (WMA # 1.7)
(iv) Refuse to participate in or support practices that violate basic human rights (CMA # 9)	(iv) A physician shall act in the patient's best interest when providing medical care (WMA # 2.2)
(v) Inform your patient when your personal values would influence the recommendation or practice of any medical procedure that the patient needs or wants (CMA # 12)	(v) A physician shall give emergency care as a humanitarian duty unless he/she is assured that others are willing and able to give such care (WMA # 2.5)
(vi) In providing medical service, do not discriminate against any patient on such grounds as age, gender, marital status, medical conditions, national or ethnic origin, physical or mental disability, political affiliation, race, religion, sexual orientation, or socioeconomic status (CMA # 17)	

diversity should be tolerated and even celebrated; from this perspective, it would seem consistent that unilateral dictates to denigrate one set of beliefs over another would be frowned upon.

There has also been the introduction of another set of care standards issued by professional societies of specialists that do not have disciplinary or regulatory authority, but which have subtle impact and can be used by regulators in proceedings against an objecting physician. These professional societies frequently claim to be the official voice for their specialty, but in reality they are only accountable to their members. The proposed SOC pronouncements and position statements by such groups are subject to influence by various determinants including vested interests and ideology. In addition, disease-specific advocacy organizations, such as the hypothetical "Osteoporosis Foundation" or the "Depression Society," often receive funding and support from corporations manufacturing therapies for these diseases. These same advocacy organizations, however, often provide guidelines for care and disseminate pronouncements about how ethical practitioners should counsel individuals diagnosed with these specific diseases.

Finally, various contemporary ethical principles routinely provided to students in medical school training require some measure of ongoing scrutiny. These promoted ideals include values such as beneficence, tolerance, nonmaleficence, non-paternalism, professionalism, and justice. A major criticism of some of these tenets, however, is that they can be vague, potentially duplicitous, and open to mutually exclusive interpretations [22]. For example, while tolerance of others may be a noble perspective in theory, any sincere disagreement or presentation of an opposing perspective may be characterized as intolerant. With concern about being labeled intolerant, some health providers may be reluctant to challenge poor health choices and then acquiesce to suboptimal courses of action. In essence, alleging intolerance is an effective way to preclude intelligent inquiry and to dismiss honest critique.

*3.2. Considerations in Ethical Decision-Making.* In light of the fact that modern ethical principles do not address specific medical procedures and can be interpreted in many ways, how then are physicians and other healthcare providers to make challenging decisions in situations of ethical distress?

First, we contend that issues of ethical collision should be openly acknowledged and respectfully discussed between professionals and patients. It is important for healthcare providers to disclose their convictions rather than concealing them when considering a course of action they feel is unwise [86]. Failure to disclose the rationale for professional conscience decisions may leave patients confused, in a quandary, and perhaps feeling rejected for the evident disagreement. It is important for patients to be made aware that refusal to provide the requested course of action does not represent the physician's revulsion for the person requesting the service but rather a sincere concern about how the act itself may - from the practitioner's perspective - be unsuitable, imprudent, unethical, or harmful [10]. Furthermore, some critics suggest that acquiescence by the practitioner without being forthright may facilitate guilt and shame for the health provider [37, 104].

In order to systematically explore an ethical course of action, it may be useful to consider three components of medical decision-making in light of the case—the patient's objectives, the physician's judgment, and professional ethics (Figure 1). A foundational component of ethical decision-making is an introspective assessment and perspicacious understanding of the ethical values guiding one's decisions. These internal constructs, formed and reformed over the physician's life are crucial in guiding decision-making. It is important that health providers develop insight into their own individual values, the origin of such values, and the way in which these values influence their decision-making.

Inherent in this process is to recognize (i) which values guiding their conscience are deeply held standards, (ii) which represent habitual patterns from socialization, and (iii) which



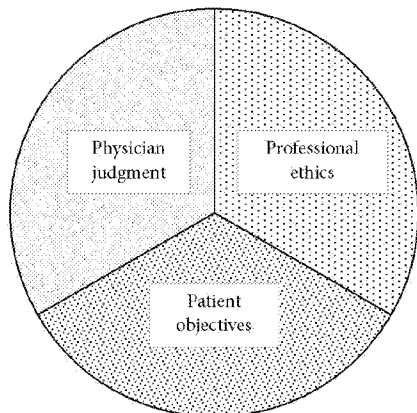


FIGURE 1: Essential determinants of ethical decision-making.

are mere personal preferences. There is a continuum when determining the ethical validity of certain choices and the willingness to be involved in facilitating such choices—the continuum may end with “contrary to” but begins with “not as desirable as.” In order to prepare for situations of ethical collision and to decide on a clinical response, it is important for practitioners to understand their own inherent moral and ethical compass. This process aids in critically assessing whether reservations or oppositions to a medical course of action are justified and can potentially allow for revision or modification.

In all clinical situations, it is vital that a physician patiently and humbly seeks to be empathetic and to understand patient objectives and beliefs in a nonjudgmental manner. The importance of thoroughly understanding patient requests and beliefs cannot be overemphasized. Many physician-patient conflicts can be avoided if both parties understand each other’s guiding rationale. Unfortunately, many physicians tend to be burdened by time constraints and this pillar in ethical decision-making can sometimes be neglected.

Finally, an understanding and appreciation of the ethical standards embraced by professional associations is an essential component in ethical decision-making for health providers. For example, in Canada, physicians should be cognizant of the Canadian Medical Association’s code of ethics as discussed earlier [101].

**3.3. Compelled against One’s Conscience.** Consider a hypothetical case in which an administrator overrules a resident’s empathetic decision to resuscitate a developmentally-disabled homeless patient. It is incongruous to assume that compassionate nurses, paramedics, and the resident staff would not have difficulty as a result of seeing a patient denied care. Before implementing any widespread policy to control physician behavior, it is important to consider the impact of unilaterally coercing physicians to comply with authoritarian dictates on all stakeholders within the healthcare system. Moral residue has been described as “that which each of us carries with us from those times in our lives when in the face

of moral distress we have seriously compromised ourselves or allowed ourselves to be compromised” [105]. There is emerging attention to the potential personal consequences “when there is incoherence between one’s beliefs and values and one’s actions” [105].

To the authors’ knowledge, no quantitative research exists to date to measure the impact of moral residue or to objectively determine the outcome of violating personal conscience in medical practice. Recent anecdotal evidence, however, suggests that failure to act in accordance with deeply-held beliefs in times of “moral distress” may have damaging sequelae. There is increasing discussion about the concept of moral trauma or “moral injury.” This latter term refers to consequences resulting from “perpetrating, failing to prevent, bearing witness to, or learning about acts that transgress deeply held moral beliefs or expectations” [106]. Although it is not known how the symptoms of moral injury will present over time, there is concern that the consequent psychological and emotional strain may have a detrimental impact on the essence of personhood. As an individual’s moral framework may constitute a fundamental component of their identity, coercion to engage in behavior that violates their moral code may represent an assault on their moral ecosystem and a violation of personal integrity that threatens their essential humanity [12]. In military situations, for example, moral injury can be associated with serious and ongoing alienation, intense shame, and sustained distress [107].

Preliminary evidence gleaned from study of various types of health professionals is noteworthy. In addition to immediate feelings including anger, resentment, guilt, frustration, sorrow, and powerlessness when faced with serious moral distress [42], the recent literature has begun to describe anecdotal long-term sequelae of the associated moral trauma inherent with ethical distress that sometimes results in conscience violation. Health professionals have been noted over long-term observation to display emotional dysregulation and experience problems including job dissatisfaction, abandonment of their profession, burnout, feelings of inadequacy, relational challenges, and alterations in patient care [108–112]. Undoubtedly, observational research to quantify impact of violating personal conscience is challenging due to confounders including personality differences, support systems, and healthcare-provider confidentiality. It is possible, however, that health professionals who compromise their conscience and violate their moral compass may be casualties of any ruling that disrespects conscience freedom.

What impact does violation of conscience have on integrity of conscience? Research involving other professions suggests that stifled consciences may lead to permanently “seared” consciences [11]. Just like the death camps of World War II, where the perpetrators of horrific crimes including some doctors were socialized into disassociating their conscience from their conduct, so also can other physicians be subtly compelled to become skilled technicians submitting to authority [11]. Some doctors in South Africa, for example, succumbed to hierarchical pressures to condone ongoing acts of state-sanctioned violence under the Apartheid regime [113].

Patients and society will also face the effects of physician moral dissatisfaction. If practitioners become increasingly subservient technicians, rather than self-regulated medical advisors, patients will no longer be able to trust that a physician's advice is based on a personal assessment of what is best for the patient. Recipients of health care will be left to decipher medical recommendations based on what they assume to be the underlying purpose of the counsel. In addition, physicians will become increasingly dependent on authorities and regulators (who may be influenced by vested interests) to dictate what they can or cannot do. As mentioned, physicians who act as technicians at the beckoning of the state have carried out many atrocities [68]. Certainly, any society that encourages obedience without questioning not only places all of humanity in a precarious position but also limits the freedom of healthcare institutions throughout society [10, 11]. In addition, some clinicians attribute the marked pattern of declining physician morale in some measure to the fact that medical practitioners are no longer self-regulated, but are increasingly subject to and regulated by administrators who themselves have little to no clinical responsibilities [22, 114].

Physicians refusing to comply with given guidelines may face a difficult choice: (i) finding a surreptitious means of avoiding uncomfortable actions (i.e., calling in sick, refusing to accept certain patients, changing shifts), or (ii) accepting penalization in order to save their personal integrity [10]. Should healthcare providers and trainees acting from a perspective of conscience face penalties such as rejection from medical training, loss of privileges to practice within an institution, or even a requirement to surrender their medical license if their chosen course of action is in disagreement with a patient or medical regulator?

Most ethical questions involve subjective judgment and often cannot be answered by "empirical testing or any other comprehensive doctrine for distinguishing right from wrong" [115]. Accordingly, if it is impossible to objectively determine that either of two ethical poles is right, both sides of this argument must concede that there is at least some possibility that opponents may be right, leaving no legitimate grounds on which to punish them [115]. Based on respect for diversity, legal and policy precedents, ethical uncertainty, and the potential impact on individual medical professionals and society as a whole, we conclude that it is intolerant, illegitimate, and immoral to punish health providers who act based on deeply-held conscience perspectives about what they believe is best for patients.

#### **4. Broader Perspectives on Freedom of Conscience**

The authoritarian stance of coercing health professionals to do what they sincerely believe is wrong appears to be unsupported on many fronts. The Canadian Medical Association Code of Ethics Article 7, for example, charges physicians with the responsibility to refuse any medical participation that will undermine their professional integrity [101]. This article and many others in the Code of Ethics (explored in Table 2) emphasize that a physician possesses the responsibility of

not only upholding the patients' best interests, but also the responsibility to maintain his or her own personal integrity. Facilitating a clinical course of action that the health provider sincerely deems to be ill-advised, unethical, or against the patient's best interests may compromise the integrity of the professional role and may violate fundamental tenets of such ethical codes. Furthermore, the WMA further emphasizes the importance of physicians' "independent professional judgement" and "moral independence" [102], and claims that physician independence is a fundamental component of acting ethically in the patient's best interest.

Some freedom of conscience opponents contend, on the other hand, that it is both arrogant and paternalistic for a physician to consider that he or she knows what is in the patient's best interests and they assert that a refusal to accede to patient requests represents an imposition of values [57, 69, 70]. Conscience supporters rebut this claim by suggesting that the practice of medicine is predicated on the reality that a patient consults a health provider seeking advice and counsel to the best of the practitioner's ability and skill—just as an individual seeking professional advice from a lawyer is seeking counsel to the best of the advocate's knowledge, wisdom, experience, and ability. It would appear to be ethically problematic for a lawyer to facilitate a course of action he or she deems seriously harmful to the client. While it is true that the actions of any professional are not necessarily correct objectively, they are deemed to be the best representation of the ability of that individual who has been granted the privilege of acting as a professional.

Medical practice is also a fundamentally human and personal enterprise, an ideal that is compromised when the profession is subservient to the state or overarching social and professional dictates. Furthermore, medical professionals are not simply service providers or therapy vendors, but professionals using judgment, wisdom, and decision-making—nonobjective concepts that will certainly be in error at times. The fact that the privilege of prescribing medication is restricted to physician judgment, not simply patient request, for example, is representative of the respect given to the wisdom and experience of the professional rather than leaving this decision solely to the patient's judgment.

Although the medical community is a self-governing profession, it is also subject to the law with adherence to national and international charters. Canadian citizens, for example, are protected under the Canadian Charter of Rights and Freedoms. This Charter specifically states that Canadians enjoy fundamental FC [116], a perspective that has been upheld by legal rulings in the Supreme Court of Canada. In regards to FC, it is noteworthy that in 1985, for example, Chief Justice Brian Dickson established a legal precedent upholding the freedom of Canadians to refuse to be coerced or constrained to act, or to refrain from acting, in a manner contrary to their volition [117]. When discussing freedoms, the justice wrote: "Freedom can primarily be characterized by the absence of coercion or constraint. If a person is compelled by the State or the will of another to a course of action or inaction which he would not otherwise have chosen, he is not acting of his own volition and he cannot be said to be truly free" [117].

Although differing interpretations exist, some understand this judgment to suggest that no Canadian is to be compelled to perform an action that is contrary to his or her beliefs or conscience, as long as it is within reasonable civil limits and does not jeopardize the freedoms of others. Some others, however, contend that while freedom is a noble pursuit, it is legitimate in some situations to constrain absolute freedom in order to achieve a higher individual or public good—such as the situation of forced confinement for someone threatening to harm others or self. As a result of differing perspectives and interpretations of the meaning of freedom, an increasingly common challenge facing the justice system is to consistently find appropriate balance in the tension between individual rights and the perceived greater personal or public good.

As well as the existence of country-specific charters, the United Nations (UN) has crafted a Universal Declaration of Human Rights, which appears to add another layer of support in protecting a physicians' right to a free conscience. Article 18 explicitly states that "everyone has the right to freedom of thought, conscience, and religion" [118]. This article and others contained in the UN document expound on the fundamental rights and responsibilities of all humans, including practicing physicians.

Regardless of the fact that charters and precedents may support conscience rights, many practitioners still feel compelled to violate their own conscience in some clinical situations. While charters may offer theoretical refuge, some clinicians conclude that proclamations hold little sway within regional medical communities [7]. In the face of enormous pressure and sometimes ethical anguish, it is important for professionals to also consider the potentially damaging sequelae of acting against their conscience, a concern that has unfortunately been for the most part neglected in the conscience debate.

*4.1. Other Considerations about Freedom of Conscience.* Conscientious objections today are plagued by shifting lines in the sand—while a medical act may be frowned upon one day, legislative or social changes may result in the condoning of the same act a short while later. Furthermore, policies often conflict between localities. This pattern is currently evident in the protocol surrounding end of life interventions—some jurisdictions are vehemently opposed to euthanasia while other locales support this practice. Similarly, female genital mutilation is considered abhorrent in many jurisdictions and cultures, but is routinely practiced in other areas and among some cultures. Does something become good or evil based on what authorities decide or what geographical area it is undertaken? It is doubtful whether a physician's conscience should be dictated by geography or the whims of legislators or judges in a given region.

Patient autonomy and physician autonomy are not mutually exclusive and are not competing ideals. In an era of alleged respect for personal autonomy and independence, denial of conscience rights is a repudiation of physician autonomy. Rather than the physician presenting patients with choices and recommendations with informed counsel and respecting the patient's right to make autonomous decisions

based on informed consent, removal of FC relegates physicians to become service providers subordinate to patient and regulatory demands. Rather than respect for patient autonomy in the physician-patient relationship, such a trend moves medicine into the realm of patient "sovereignty"—a forfeiting of physician autonomy in which health professionals are expected to separate their professional acts from their personal values.

Finally, much attention has been applied to the sacrosanct and confidential physician-patient relationship. It is questionable whether those outside the profession who are not directly involved in unique patient-physician encounters should be overarching commanders in dictating the outcome of such interactions. While many contend that decisions regarding certain ethical matters should remain an issue between a patient and their doctor, denial of FC eliminates this construct completely by making such interactions ultimately an issue between a patient and regulators.

*4.2. Additional Concerns about Conscience Freedom Legislation.* While most patients expect their health professional to be ethically-minded, knowledgeable, honorable, and compassionate, it is plausible that unregulated FC clauses could become a "rule that knows no bounds" [70]. Certain common concerns with broad FC declarations have been voiced by both critics and supporters of conscience rights legislation [1, 10, 27, 55, 57]. Exploitation of liberties and fallibility of conscience are two main issues that have been raised as potential challenges.

A universal FC clause may facilitate behaviour considered by most to be problematic or profoundly inconvenient under the guise of "conscience rights." It is conceivable that physicians could refuse to see or examine patients of a particular gender or lifestyle, with specific types of medical conditions, or choose to miss work on cultural or religious days [56]. Furthermore, some physicians may decide not to provide care to seniors past a certain age, to decline the acceptance of patients with complex health problems, or to refuse to learn about sexually transmitted diseases because of personal prejudices [119]. In fact, there are reports of medical students from one religious group refusing to learn about alcohol-related diseases or to assess and treat members of the opposite sex [65]. A physician-in-training who, allegedly based on conscience, refuses to learn how to care for patients within a certain demographic or with selected medical conditions, poses a significant impediment to medical education [87].

This "double-edged sword" aspect of the FC issue extends to behavior or actions considered abhorrent or deplorable by social standards and highlights an apparent inconsistency among supporters of FC. There is genuine apprehension that any formalized FC policy might facilitate tolerance of repugnant behavior that is not socially acceptable but which serves the personal conscience of individual practitioners. Concerns on this matter have been expressed about certain choices by health providers surrounding issues including female genital mutilation, virginity certificates, or the refusal to resuscitate disabled newborns and elderly Alzheimer's patients. Just because an individual or group of health providers from a particular perspective feel compelled by conscience to

support or refuse a medical practice does not necessarily translate into support from FC advocates. Ultimately, many FC supporters acknowledge the inconsistency and grant that conscientious decisions within a civilized society must have delineated boundaries.

It is well recognized that just as sincere regulators can be sincerely misguided, sincere individual practitioners can be sincerely misguided. Just as governments and administrators are not infrequently misguided in their decisions, individual well-meaning professionals may also be misguided in their judgments, even with good intention. Both individual as well as collective conscience can be very subjective, fallible, and heavily influenced by disordered reasoning, misinformation, peer influence, and societal or cultural pressures. Such pragmatic concerns about FC legislation highlight the challenge for any group functioning within an environment without a normative ethic or with a plurality of ethical perspectives based on different fundamental values.

Various suggestions have been put forth to address such concerns. Physician accountability is absolutely required to secure public and patient safety and to preserve the integrity of the profession. Accordingly, in the absence of a normative ethic, a delicate balance of regulation and respect for individual freedom is necessary [22]. It is our view that professional bodies and legislators should fulfill their primary role of protecting the public good within reasonable boundaries but should concomitantly establish some overt measure to demonstrate tolerance towards conscientious, competent physicians who demonstrate disparate views on the continuum of ethical diversity [56].

Some have suggested that open, respectful discussion between colleagues of diverse perspectives may help serve as a suitable safety net to cut through erroneous reasoning, emotional tension, and/or peer pressures [10]. This reasoning suggests that honest exploration of the issues would help healthcare workers develop realistic approaches to deal with conscientious objections [56]. Although well-intentioned, the current culture of medicine does not necessarily always foster or condone open discussion [120]. A common portrayal of conscientious objectors depicts such healthcare workers as intellectually challenged religious fanatics who impose their personal values on patients and dogmatically refuse to provide patients with legal, well-accepted medical treatments. Opponents of conscience rights are sometimes quick to further stereotype such conscientious objectors as obscure outliers with philosophies and views contrary to mainstream evidence-based ethical care. As a result, some contend that while openness to thoughtful discussion of conscience issues should be encouraged, the only option that will secure the human rights of minorities at this time is FC legislation. While this defensive measure may not be ideal, it may be required to prevent tyranny in selected situations.

*4.3. Suggested Approach When Considering Situations of Ethical Tension.* Suggested guiding principles for healthcare providers to demonstrate respect for patients while maintaining conscience and personal integrity are offered for consideration in Table 3. An actual case study is then presented which illustrates some of the practical realities of

TABLE 3: A suggested approach for healthcare providers when facing conscience dilemmas.

- 
- (i) Be an excellent MD in competence, knowledge, compassion, and relationship with patients.
  - (ii) Avoid emotional manipulation; always provide the complete truth and comprehensive information.
  - (iii) Always do what you believe to be right and best for the patient.
  - (iv) Prepare patients early on in the relationship for any perspectives that may be at odds with the patient's values.
  - (v) Consider referral to appropriate regulatory bodies for patients needing further direction.
  - (vi) With sincerity, respectfully explain your perspectives when in disagreement with patients.
  - (vii) Respect individual values and ethics but never compromise your personal honor and integrity.
  - (viii) Expect that some people will not appreciate you; most will.
  - (ix) Continually examine your actions and motivations with humility and secure a means to maintain continued accountability. Respectfully discuss concerns with regulatory bodies as appropriate.
  - (x) Always approach medical authorities with respect and avoid insubordination. Refusing to perform an action that is sincerely perceived to be unethical, however, is not insubordination.
  - (xi) Obtain advice, and share ideas and concerns with trusted colleagues.
  - (xii) Confirm for patients that they have the right to see another health provider.
- 

enacting FC in a clinical context and highlights some of the professional issues associated with divergent perspectives on common medical interventions.

## 5. Case Study

While consulting on the cases of two young women with cerebrovascular events following commencement of the birth control pill (BCP), a physician became aware of emerging information presented in the medical literature related to this medication. After much consideration, the physician eventually made a conscience decision to no longer dispense oral contraception (OC). This choice was not in keeping with the current SOC and resulted in several uncomfortable situations with patients and colleagues.

In coming to this decision, this medical professional initially reviewed the medical literature related to hormonal contraception. It was found that most BCP research and the associated knowledge translation appeared to be funded by vested interests—industries associated with OC (oral contraception), as well as groups and professional associations with ties or receiving funding from contraceptive manufacturers. With extensive literature confirming the enormous influence of industry on research outcomes [93, 121–123], and multibillion dollar settlements against various major pharmaceutical companies for egregious wrongdoing [124], the integrity of some of the alleged findings in the industry-sponsored reports was questioned. Furthermore, on detailed

review of various research publications, numerous adverse findings relating to individual and public health were evident regarding BCP use. A small sample of recent references to summarize selected concerns includes the following.

- (i) The BCP is a human carcinogen in women [125–127], in men [128] (through environmental contamination), and in offspring [129] (through vertical transmission).
- (ii) The BCP significantly increases the risk of cardiovascular events [130], hypertension [131, 132], and cerebrovascular disease [133].
- (iii) The BCP is a significant determinant of diminished and irreversible female sexual dysfunction [134, 135].
- (iv) The BCP exerts an adverse effect on mood in some women [136, 137].
- (v) The BCP is a widespread and escalating endocrine disrupting contaminant in the ecosystem and domestic water supply [128, 138, 139].
- (vi) Some BCPs increase the risk of adverse birth outcomes and allergy in offspring of users [140, 141].

With the eventual decision to no longer prescribe the pill, some challenges ensued. As the BCP is the most common method used for fertility regulation, many of the physician's patients were already hormonal contraceptive users. Furthermore, while taking evening and night call for other practitioners, awkward situations arose as the physician interacted with colleagues' patients who requested BCP refill prescriptions. When the reasons were presented to patients along with other family planning options, an array of responses ensued. Most people politely listened to the information; some were grateful and chose to reconsider BCP use, several were decidedly not interested in the information, and a few conveyed displeasure. All were expressly aware they could acquire a BCP prescription refill from other physicians. Just the same, most patients were inconvenienced and some were disgruntled by the refusal to provide a prescription. A few patients were surprised to hear about such risks and wondered why they had not been informed previously. A few, including a medical student, suggested the information was not true, and accused the practitioner of trying to impose religious beliefs on patients.

The physician's decision to not prescribe the BCP was generally received unsympathetically by colleagues. This disapproval was sometimes reflected by direct responses including: "It is so archaic and out of step with reality and modern medicine to not support hormonal contraception," and "Modern clinical practice guidelines include dispensing birth control pills. If you cannot abide by the guidelines, then do not be a doctor." Interpersonal professional relationships with a couple of colleagues became uncomfortable as they were inconvenienced by the refusal to refill BCP prescriptions.

When the physician's rationale was directly communicated to colleagues, most expressed initial skepticism of the supposed scientific concerns. When provided with references

and medical literature, these colleagues were generally surprised and had minimal refutation other than responding that it was necessary to continue prescribing OC because of patient demand, and that patients had a right to make their own decisions. The physician expressed concern that most patients were not apprised of the aforementioned risks and thus no informed consent was obtained. If physicians were not themselves aware of the risks, it was certain they were not communicating such risks to patients. Furthermore, beyond the patient's right to put herself at risk, hormonal contamination of the water supply with ethinyl estradiol exposes the unsuspecting public to health risks, evidenced by the scale of prostate cancer risk in areas of high BCP use as recently discussed in the *British Medical Journal* [128]. While colleagues were generally unaware of emerging options for family planning discussed in the literature including new high-tech fertility monitors [142, 143], most decidedly lacked interest in discussion of such options.

In a subsequent election campaign, the regional government where the physician practised medicine unexpectedly announced that physician conscience rights—specifically the refusal to prescribe the BCP—would not be tolerated [144]. This pronouncement raised the issue of whether the physician's ability to practice conscientious medicine would be compromised by legal regulation. In addition, it became evident that some other health providers and medical trainees in other regions of the country had been chastised or disciplined by regulators for refusing to prescribe the BCP. These situations introduced the question of the role of medical and state officials in protecting the public good and whether such authorities have the knowledge and competence to always do what is best for healthcare.

Like many jurisdictions, the U.K. General Medical Council for example, continually updates and enforces a code (the UK document is entitled "Good Medical Practice" [145]) which sets forth appropriate physician behavior in their mandate of "regulating doctors, ensuring good medical practice." Despite this type of stringent regulation in most locales, however, the widespread and atrocious rates of persistent iatrogenic morbidity and mortality associated with many common and approved medical interventions [16, 146–152] confirm that perhaps some of what is sanctioned by regulatory bodies is routinely harmful to many patients. Furthermore, recent literature also confirms that many standard medical guidelines are heavily influenced by vested interests [96, 153–155] and are dated due to the slow rate of knowledge translation [92–94]. These observations account for many of the not infrequent flip-flops in recommended medical interventions, such as the HRT (hormone replacement therapy) debacle [96].

After much consideration and study, the physician concluded that what is considered acceptable or "good" medical practice by regulatory bodies is not always objectively "good" for patients. In an age of evidence-based medicine, credible outcomes and "evidence" are the markers of good medical practice, rather than the subjective perspectives of regulators. The practitioner determined that guidelines within the profession are sometimes not trustworthy, and with the enormous influence of industry on these pronouncements,

they are, at times, unethical [96, 121, 122, 155]. In addition, it became evident that throughout medical history, recognized and celebrated advancements in medical practice have frequently occurred because conscientious practitioners refused to comply with the status quo [153]. Considerable discussion with respected colleagues and scientists ensued to confirm the legitimacy and accuracy of the expressed concerns regarding the BCP and the state of contemporary medical practice. The physician concluded that it is misguided for medical authorities to diminish the role and importance of personal conscience and moral awareness in medical practice.

Every clinical judgment is configured within a premise of conscience—the premise that a physician ought to provide the best available treatment, and that it would be unethical not to deliberately refuse to do otherwise. It was from this stance that a conscience decision was enacted. As such, after studying the scientific literature and consulting with respected experts, the physician concluded that with effective and safer alternatives readily available, dispensing hormonal contraception routinely was perhaps not in the best interests of patients or society as it is apparently endangering to personal and public health, destructive to the environment, and potentially harmful to wildlife. The physician in this case study made a conscience decision based on moral precepts of “doing the right thing” to no longer dispense the BCP. Patients’ need for fertility regulation was attended by providing comprehensive information about all family planning options and recommending approaches that the physician sincerely felt were optimal.

## 6. Conclusion

The dilemma of diversity is not new. Diversity of ethics and morals is the natural consequence of a culture that facilitates freedom of thought, independent thinking, and moral autonomy. Although such precepts as liberty of thought and action in all domains may sound reasonable, many philosophers including 19th century authors Friedrich Nietzsche in Germany and Fyodor Dostoevsky in Russia have cautioned about the typical sequelae of such liberty. These noted thinkers have suggested that with the passage of time, freedom of diversity might be anarchic, destructive, impossible to sustain, and something that has to be constrained in order for people and cultures to thrive [156, 157]. Yet, despite historical concerns, our contemporary culture currently claims to respect and celebrate freedom of thought and diversity, an inclusive perspective which is generating escalating angst and conflicting responses from within the medical community. Can contemporary medical culture tolerate nonuniformity of values and thrive in the face of conflict on basic issues including definitions of what constitutes human life?

As our society becomes increasingly multicultural and diverse in the marketplace of ideas and in the everyday domains of contemporary western life, it is uncertain whether our culture can sustain a tolerance and respect for the potentially polarizing views represented by escalating diversity. In the medical community specifically, the shift away from

the definitive normative ethic of the Hippocratic Oath to the modifiable and equivocal “codes of ethical conduct” in the 1960s may have initiated a more significant transition than is generally recognized. With dissimilar and sometimes mutually exclusive interpretations of what is good, prudent, and necessary for patient care, healthcare providers will inevitably face ongoing challenges with moral and ethical dilemmas. Such diversity raises various questions. With the divisive and sometimes acrimonious exchanges on various ethical issues that take place, will regulatory authorities sense a threat to the homeostasis of the healthcare community and move to establish an authoritarian approach to constrain ethical diversity? With plurality of thought on various healthcare issues, which faction within the medical or regulatory community has the moral and scientific authority to decide upon foundational pillars and clinical directives of any new normative ethic?

Yet, there is also legitimate concern that enforced uniformity and allegiance to the dictates of any authority, thus coercing health providers to abandon diversity and conscience in order to accede to fluctuating social norms and patient demands, has the potential to threaten individual integrity and, in some situations, to endanger society. Furthermore, compulsion cannot eliminate personal moral awareness, and coerced participation in morally repugnant acts imposes “unnatural” motivation on the healthcare provider [101]. Consideration of the moral, emotional, and psychological trauma which may be done to individuals compelled to act against conscience is an important part of this discussion and warrants careful study. To date, analyses of the impact of coerced involvement have tended to focus on the outcomes for healthcare systems and recipients rather than for providers; a notable deficiency considering the importance of medical professionals as key stakeholders in providing sustained care within the healthcare system.

Many essential questions on this issue, for example, remain unanswered. Does repeated moral distress lead to damaging moral injury with attendant sequelae? Is denial of conscience a pathway to nullification or euthanization of conscience? What is the impact of moral stress on delivery of patient care and the physician-patient relationship? With high rates of burnout and about one-quarter of physicians already expressing that they feel depressed [158], can healthcare systems afford to have increasing numbers of walking-wounded among their healthcare providers?

After considering the emerging literature and the myriad of opinions on all sides of the equation, it is proposed here that abolition of conscience freedom is not apposite within contemporary healthcare. In the interests of society, the profession, and the advancement of medicine, it seems misguided for authorities and regulators to introduce a draconian policy of coercing clinicians to set aside iconoclastic ideas, to avoid scrutiny of the status quo, and to suspend professional judgment on various fundamental health issues. Such a policy of intolerance towards individual freedoms and creativity, often engineered by individuals far removed from the practice of clinical medicine, displays a lack of respect for the competence, ability, ingenuity, and integrity of health professionals, and has the potential to stifle medical

progress and to adversely affect physician morale. History has repeatedly established the progressive role of thoughtful dissent in the delivery of healthcare. It is therefore suggested that a judicious tension of individual freedom and competent regulation within accepted societal boundaries is required to facilitate a vibrant and progressing professional environment. It is apparent, however, that some governments and medical regulators are entertaining the idea of adopting an authoritarian role and purging liberty of conscience from healthcare professionals.

In a recent election campaign in Canada, an intense debate unfolded on the healthcare conscience issue at which time the government leader, challenging the principle of conscience freedom, stated “when people take on professional responsibilities, I expect them to be able to meet those professional responsibilities” [144]. It will be a noteworthy and significant day for individual practitioners, for the medical profession, for individual patients, and for society as a whole when we demand a preparedness to do what one believes to be unethical, wrong, or evil as a prerequisite professional responsibility in order to join the medical community. It will be a sobering moment, indeed, when a willingness to capitulate to regulatory demand becomes a more important and established value in the medical community than integrity of character and an unwavering resolve to do what is good. It will be a paradoxical state when we exhort doctors to “Do no harm” but simultaneously compel them to do what they believe is harmful—as long as a patient requests it or an authority demands it.

### Conflict of Interests

The authors declare that there is no conflicts of interests.

### Acknowledgments

The authors would like to express sincere thanks to Daniel Eriksson, Rachel Roberts, Sean Murphy, Dr. David Loewen, Dr. Douglas Haberstock, Dr. James Meek, and Dr. Shelagh Genuis for providing insights and assistance with the preparation of this paper.

### References

- [1] D. P. Sulmasy, “What is conscience and why is respect for it so important?” *Theoretical Medicine and Bioethics*, vol. 29, no. 3, pp. 135–149, 2008.
- [2] L. R. Kass, “Regarding the end of medicine and the pursuit of health,” *The Public Interest*, vol. 40, pp. 11–42, 1975.
- [3] D. Harper, “Conscience,” Online Etymology Dictionary, 2001, [http://www.etymonline.com/index.php?term=conscience&allowed\\_in\\_frame=0](http://www.etymonline.com/index.php?term=conscience&allowed_in_frame=0).
- [4] Oxford University Press, “Conscience,” Oxford Dictionaries, 2013, <http://oxforddictionaries.com/definition/english/conscience?q=conscience>.
- [5] F. A. Curlin, R. E. Lawrence, M. H. Chin, and J. D. Lantos, “Religion, conscience, and controversial clinical practices,” *The New England Journal of Medicine*, vol. 356, no. 6, pp. 593–600, 2007.
- [6] M. P. Combs, R. M. Antiel, J. C. Tilburt, P. S. Mueller, and F. A. Curlin, “Conscientious refusals to refer: findings from a national physician survey,” *Journal of Medical Ethics*, vol. 37, no. 7, pp. 397–401, 2011.
- [7] R. E. Lawrence and F. A. Curlin, “Physicians’ beliefs about conscience in medicine: a national survey,” *Academic Medicine*, vol. 84, no. 9, pp. 1276–1282, 2009.
- [8] P. Fuss, “Conscience part I,” in *Conscience*, J. Donnelly and L. Lyons, Eds., pp. 35–50, Alba House, New York, NY, USA, 1973.
- [9] S. A. Hurst, S. C. Hull, G. DuVal, and M. Danis, “How physicians face ethical difficulties: a qualitative analysis,” *Journal of Medical Ethics*, vol. 31, no. 1, pp. 7–14, 2005.
- [10] G. Birchley, “A clear case for conscience in healthcare practice,” *Journal of Medical Ethics*, vol. 38, no. 1, pp. 13–17, 2012.
- [11] S. Murphy, “Notes toward an understanding of freedom of conscience,” 2012, <http://www.consciencelaws.org/issues-ethical/ethical134.html>.
- [12] S. Murphy and S. J. Genuis, “Freedom of conscience in health care: distinctions and limits,” *Journal of Bioethical Inquiry*, vol. 10, no. 3, pp. 347–354, 2013.
- [13] L. Kruse, A. Iqbal, A. Aziz, I. J. Kodner, and J. D. Keune, “A surgeon coerced under the Taliban: an ethical dilemma,” *Surgery*, vol. 149, no. 6, pp. 825–829, 2011.
- [14] P. G. Brindley, “Cardiopulmonary resuscitation, societal expectations, and the importance of saying, ‘No,’” *Canadian Journal of General Internal Medicine*, vol. 5, pp. 62–63, 2010.
- [15] S. J. Genuis, “Medical practice and community health care in the 21st Century: a time of change,” *Public Health*, vol. 122, no. 7, pp. 671–680, 2008.
- [16] S. J. Genuis, “Diaspora of clinical medicine: exploring the rift between conventional and alternative health care,” *Canadian Family Physician*, vol. 59, pp. 628–632, 2013.
- [17] G. Cohen, “Circumvention tourism,” *Cornell Law Review*, vol. 97, no. 6, pp. 1309–1398, 2012.
- [18] D. C. Wertz, J. M. Rosenfield, S. R. Janes, and R. W. Erbe, “Attitudes toward abortion among parents of children with cystic fibrosis,” *The American Journal of Public Health*, vol. 81, no. 8, pp. 992–996, 1991.
- [19] J. Liljestrand and D. Shaw, “Sex selection, gender-based violence and human rights abuse,” *Acta Obstetrica et Gynecologica Scandinavica*, vol. 87, no. 4, pp. 482–483, 2008.
- [20] R. D. Macleod, D. M. Wilson, and P. Malpas, “Assisted or hastened death: the healthcare practitioner’s dilemma,” *Global Journal of Health Science*, vol. 4, article 87, 2012.
- [21] M. Gusmano, “End-of-life care for patients with dementia in the United States: institutional realities,” *Health Economics, Policy and Law*, vol. 7, no. 4, pp. 485–498, 2012.
- [22] S. J. Genuis, “Dismembering the ethical physician,” *Postgraduate Medical Journal*, vol. 82, no. 966, pp. 233–238, 2006.
- [23] K. Blanton, “Female genital cutting and the health care provider’s dilemma: a case study,” *Clinical Scholars Review*, vol. 4, article 119, 2011.
- [24] R. J. Cook and B. M. Dickens, “Special commentary on the issue of reinfublation,” *International Journal of Gynecology and Obstetrics*, vol. 109, no. 2, pp. 97–99, 2010.
- [25] H. V. Kunins, T. A. Farley, and D. Dowell, “Guidelines for opioid prescription: why emergency physicians need support,” *Annals of Internal Medicine*, vol. 158, no. 11, pp. 841–842, 2013.
- [26] M. J. Desborough and M. F. Murphy, “Legal and ethical issues in blood transfusion,” *The British Journal of Hospital Medicine*, vol. 74, no. 1, pp. 2–4, 2013.

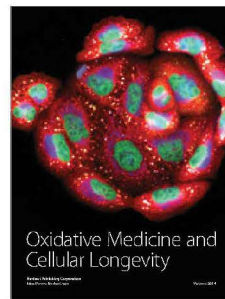
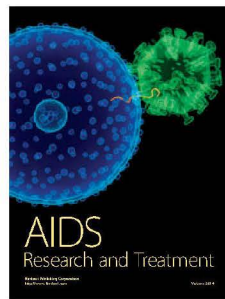
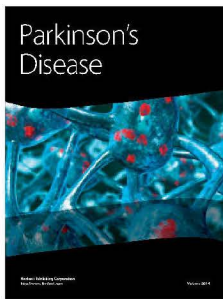
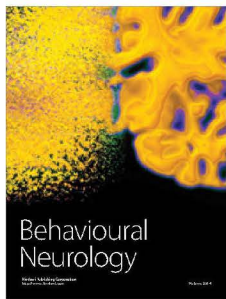
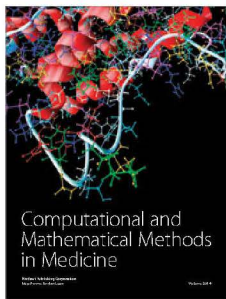
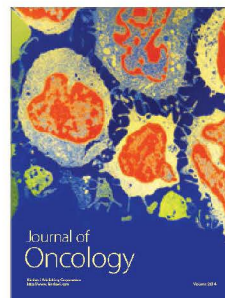
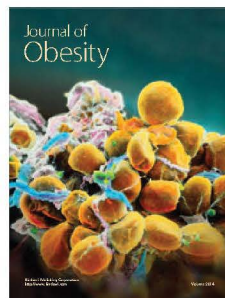
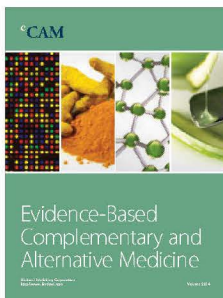
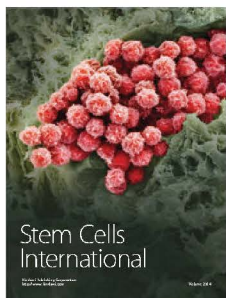
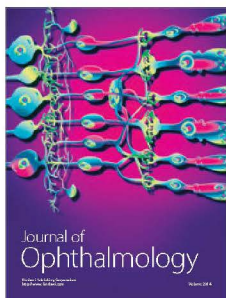
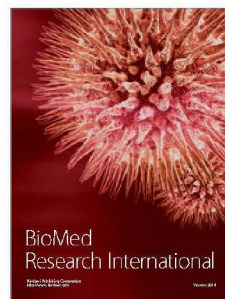
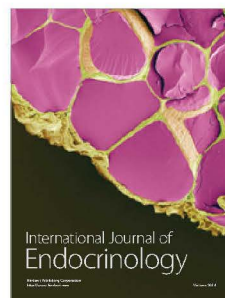
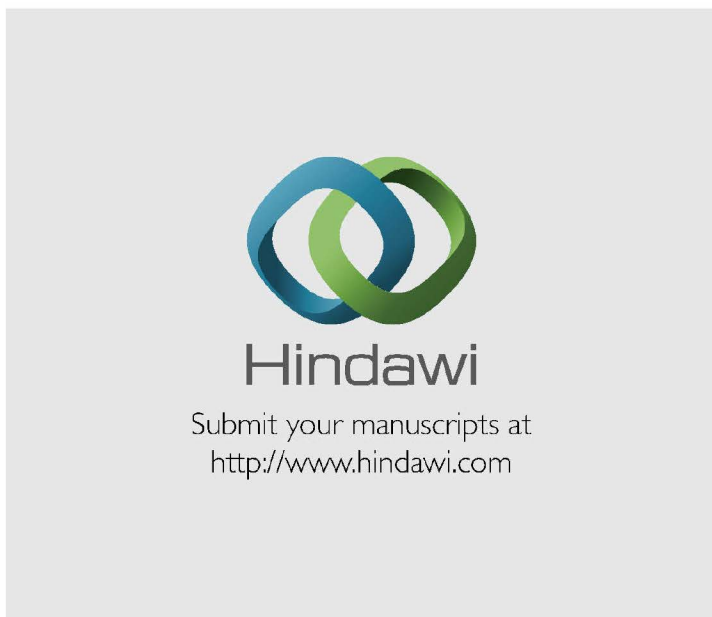
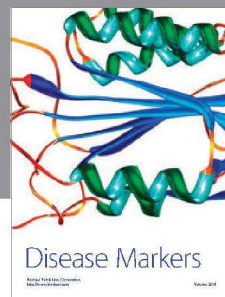
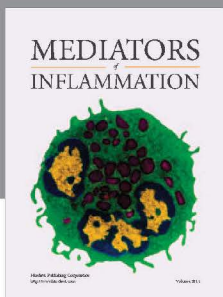
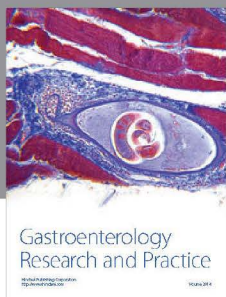
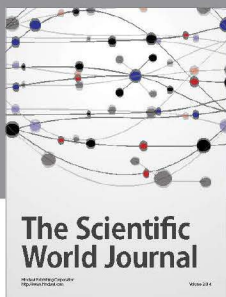
- [27] R. Alta Charo, "The celestial fire of conscience—refusing to deliver medical care," *The New England Journal of Medicine*, vol. 352, no. 24, pp. 2471–2473, 2005.
- [28] K. Gray, R. Erb, and Detroit Free Press, "Moral objection' bill would allow health care providers to refuse service," 2012, <http://www.freep.com/article/20121207/NEWS06/312070093/-Moral-objection-bill-would-allow-health-care-providers-refuse-service>.
- [29] D. Walton and The Globe and Mail, "Conscience rights issue continues to dog Alberta election," 2012, <http://www.theglobeandmail.com/news/politics/conscience-rights-issue-continues-to-dog-alberta-election/article4099283/>.
- [30] K. Lützn, A. Cronqvist, A. Magnusson, L. Andersson, and Institutionen för vårdvetenskap, Ersta Sköndal högskola, "Moral stress: synthesis of a concept," *Nursing Ethics*, vol. 10, pp. 312–322, 2003.
- [31] K. Weaver, "Ethical sensitivity: state of knowledge and needs for further research," *Nursing Ethics*, vol. 14, no. 2, pp. 141–155, 2007.
- [32] A. Glasberg, S. Eriksson, V. Dahlqvist et al., "Development and initial validation of the stress of conscience questionnaire," *Nursing Ethics*, vol. 13, no. 6, pp. 633–648, 2006.
- [33] J. Ahlin, E. Ericson-Lidman, A. Norberg, and G. Strandberg, "Revalidation of the perceptions of conscience questionnaire (PCQ) and the stress of conscience questionnaire (SCQ)," *Nursing Ethics*, vol. 19, no. 2, pp. 220–232, 2012.
- [34] A. L. Glasberg, S. Eriksson, and A. Norberg, "Burnout and "stress of conscience" among healthcare personnel," *Journal of Advanced Nursing*, vol. 57, no. 4, pp. 392–403, 2007.
- [35] A. Glasberg, S. Eriksson, and A. Norberg, "Factors associated with "stress of conscience" in healthcare," *Scandinavian Journal of Caring Sciences*, vol. 22, no. 2, pp. 249–258, 2008.
- [36] V. Dahlqvist, A. Söderberg, and A. Norberg, "Facing inadequacy and being good enough: psychiatric care providers' narratives about experiencing and coping with troubled conscience," *Journal of Psychiatric and Mental Health Nursing*, vol. 16, no. 3, pp. 242–247, 2009.
- [37] H. Tuveson, M. Eklund, and C. Wann-Hansson, "Stress of conscience among psychiatric nursing staff in relation to environmental and individual factors," *Nursing Ethics*, vol. 19, no. 2, pp. 208–219, 2012.
- [38] E. Ericson-Lidman, A. Norberg, B. Persson, and G. Strandberg, "Healthcare personnel's experiences of situations in municipal elderly care that generate troubled conscience," *Scandinavian Journal of Caring Science*, vol. 27, no. 2, pp. 215–223, 2013.
- [39] C. Juthberg, S. Eriksson, A. Norberg, and K. Sundin, "Stress of conscience and perceptions of conscience in relation to burnout among care-providers in older people," *Journal of Clinical Nursing*, vol. 17, no. 14, pp. 1897–1906, 2008.
- [40] C. Juthberg, S. Eriksson, A. Norberg, and K. Sundin, "Perceptions of conscience, stress of conscience and burnout among nursing staff in residential elder care," *Journal of Advanced Nursing*, vol. 66, no. 8, pp. 1708–1718, 2010.
- [41] R. Saarnio, A. Sarvimäki, H. Laukkala, and A. Isola, "Stress of conscience among staff caring for older persons in Finland," *Nursing Ethics*, vol. 19, no. 1, pp. 104–115, 2012.
- [42] V. J. Kain, "Moral distress and providing care to dying babies in neonatal nursing," *International Journal of Palliative Nursing*, vol. 13, no. 5, pp. 243–248, 2007.
- [43] A. Catlin, C. Armigo, D. Volat et al., "Conscientious objection: a potential neonatal nursing response to care orders that cause suffering at the end of life? Study of a concept," *Neonatal Network*, vol. 27, no. 2, pp. 101–108, 2008.
- [44] E. G. Epstein, "End-of-life experiences of nurses and physicians in the newborn intensive care unit," *Journal of Perinatology*, vol. 28, no. 11, pp. 771–778, 2008.
- [45] M. N. K. Karanikola, E. D. E. Papanthassoglou, M. Kalafati, H. Stathopoulou, M. Mpouzika, and C. G. Goutsikas, "Exploration of the association between professional interactions and emotional distress of intensive care unit nursing personnel," *Dimensions of Critical Care Nursing*, vol. 31, no. 1, pp. 37–45, 2012.
- [46] G. Gustafsson, S. Eriksson, G. Strandberg, and A. Norberg, "Burnout and perceptions of conscience among health care personnel: a pilot study," *Nursing Ethics*, vol. 17, no. 1, pp. 23–38, 2010.
- [47] C. E. C. F. Grönlund, V. Dahlqvist, and A. I. S. Söderberg, "Feeling trapped and being torn: physicians' narratives about ethical dilemmas in hemodialysis care that evoke a troubled conscience," *BMC Medical Ethics*, vol. 12, no. 1, article 8, 2011.
- [48] M. E. L. Iglesias, R. B. de Bengoa Vallejo, P. S. Fuentes, and M. J. Trepal, "Comparative analysis of moral distress and values of the work organization between American and Spanish podiatric physicians," *The Journal of the American Podiatric Medical Association*, vol. 102, no. 1, pp. 57–63, 2012.
- [49] R. Førde and O. G. Aasland, "Moral distress among Norwegian doctors," *Journal of Medical Ethics*, vol. 34, no. 7, pp. 521–525, 2008.
- [50] E. D. Papanthassoglou, M. N. Karanikola, M. Kalafati, M. Giannakopoulou, C. Lemonidou, and J. W. Albarran, "Professional autonomy, collaboration with physicians, and moral distress among European intensive care nurses," *The American Journal of Critical Care*, vol. 21, no. 2, pp. e41–e52, 2012.
- [51] R. D. Piers, E. Azoulay, B. Ricou et al., "Perceptions of appropriateness of care among European and Israeli intensive care unit nurses and physicians," *The Journal of the American Medical Association*, vol. 306, no. 24, pp. 2694–2703, 2011.
- [52] R. I. Hilliard, C. Harrison, and S. Madden, "Ethical conflicts and moral distress experienced by paediatric residents during their training," *Paediatrics and Child Health*, vol. 12, no. 1, pp. 29–35, 2007.
- [53] K. D. Lomis, R. O. Carpenter, and B. M. Miller, "Moral distress in the third year of medical school; a descriptive review of student case reflections," *The American Journal of Surgery*, vol. 197, no. 1, pp. 107–112, 2009.
- [54] C. Wiggleton, E. Petrusa, K. Loomis et al., "Medical students' experiences of moral distress: development of a web-based survey," *Academic Medicine*, vol. 85, no. 1, pp. 111–117, 2010.
- [55] R. F. Card, "Conscientious objection and emergency contraception," *The American Journal of Bioethics*, vol. 7, no. 6, pp. 8–14, 2007.
- [56] R. F. Card, "Is there no alternative? Conscientious objection by medical students," *Journal of Medical Ethics*, vol. 38, article 602, 2012.
- [57] J. Savulescu, "Conscientious objection in medicine," *The British Medical Journal*, vol. 332, no. 7536, pp. 294–297, 2006.
- [58] College of Physicians and Surgeons of Ontario (CPSO), "Physicians and the Ontario human rights code," 2008, [http://www.cpso.on.ca/uploadedFiles/downloads/cpsodocuments/policies/policies/human\\_rights.pdf](http://www.cpso.on.ca/uploadedFiles/downloads/cpsodocuments/policies/policies/human_rights.pdf).
- [59] "Murphy S. Philippines RH Act: Rx for controversy: the RH Act of 2012: limited or worthless exemptions," 2012, <http://www.consciencelaws.org/law/commentary/legal055-001.aspx>.



- [60] B. A. Parco, "RH Law allows private health workers to deny some services," 2013, <http://www.sunstar.com.ph/cebu/local-news/2013/03/07/rh-law-allows-private-health-workers-deny-some-services-271621>.
- [61] The Protection of Conscience Project, "Controversial HHS regulation published: no change," 2012, <http://consciencelaws.org/blog/?p=1544>.
- [62] J. M. Brown, "Conscience: the professional and the personal," *Journal of Nursing Management*, vol. 4, no. 3, pp. 171-177, 1996.
- [63] T. Goffin, "The physician's right to conscientious objection: an evolving recognition in Europe," *Medicine and Law*, vol. 29, no. 2, pp. 227-237, 2010.
- [64] T. May, "Rights of conscience in health care," *Social Theory and Practice*, vol. 27, no. 1, pp. 111-128, 2001.
- [65] S. L. M. Strickland, "Conscientious objection in medical students: a questionnaire survey," *Journal of Medical Ethics*, vol. 38, no. 1, pp. 22-25, 2012.
- [66] A. Jensen and E. Lidell, "The influence of conscience in nursing," *Nursing Ethics*, vol. 16, no. 1, pp. 31-42, 2009.
- [67] S. Devi, "Obama rescinds "overly broad" Bush-era conscience rule," *The Lancet*, vol. 377, no. 9770, p. 981, 2011.
- [68] R. J. Lifton, "Doctors and torture," *The New England Journal of Medicine*, vol. 351, no. 5, pp. 415-416, 2004.
- [69] R. Card, "Federal provider conscience regulation: unconscionable," *Journal of Medical Ethics*, vol. 35, no. 8, pp. 471-472, 2009.
- [70] R. F. Card, "Conscientious objection, emergency contraception, and public policy," *Journal of Medicine and Philosophy*, vol. 36, no. 1, pp. 53-68, 2011.
- [71] J. D. Cantor, "Conscientious objection gone awry—restoring selfless professionalism in medicine," *The New England Journal of Medicine*, vol. 360, no. 15, pp. 1484-1485, 2009.
- [72] R. J. Cook, M. A. Olaya, and B. M. Dickens, "Healthcare responsibilities and conscientious objection," *International Journal of Gynecology and Obstetrics*, vol. 104, no. 3, pp. 249-252, 2009.
- [73] J. K. Davis, "Conscientious refusal and a doctor's right to quit," *Journal of Medicine and Philosophy*, vol. 29, no. 1, pp. 75-91, 2004.
- [74] B. M. Dickens and R. J. Cook, "The scope and limits of conscientious objection," *International Journal of Gynecology and Obstetrics*, vol. 71, no. 1, pp. 71-77, 2000.
- [75] B. M. Dickens, "Legal protection and limits of conscientious objection: when conscientious objection is unethical," *Medicine and Law*, vol. 28, no. 2, pp. 337-347, 2009.
- [76] S. Edwards, "Editorial comment. Conscientious objection," *Nursing Ethics*, vol. 17, no. 4, pp. 421-423, 2010.
- [77] S. Rodgers and J. Downie, "Abortion: ensuring access," *Canadian Medical Association Journal*, vol. 175, no. 1, pp. 9-11, 2006.
- [78] J. B. Dossetor, *Beyond the Hippocratic Oath: A Memoir on the Rise of Modern Medical Ethics*, University of Alberta Press, Edmonton, Canada, 2005.
- [79] I. Kant, *Groundwork of the Metaphysics of Morals*, translated by H. J. Paton, Harper and Row, New York, NY, USA, 1964.
- [80] J. Savulescu, "Two worlds apart: religion and ethics," *Journal of Medical Ethics*, vol. 24, no. 6, pp. 382-384, 1998.
- [81] "Submission of the Ontario human rights commission to the college of physicians and surgeons of Ontario—regarding the draft policy," Physicians and the Ontario Human Rights Code, 2008.
- [82] American College of Obstetrics and Gynecology (ACOG) official committee recommendation—the limits of conscientious refusal in reproductive medicine, 2007.
- [83] R. J. Cook and B. M. Dickens, "In response," *Journal of Obstetrics and Gynaecology of Canada*, vol. 26, no. 2, p. 112, 2004.
- [84] J. D. Lantos and F. A. Curlin, "Religion, conscience and clinical decisions," *Acta Paediatrica*, vol. 97, no. 3, pp. 265-266, 2008.
- [85] J. J. Hardt, "The necessity of conscience and the unspoken ends of medicine," *The American Journal of Bioethics*, vol. 7, no. 6, pp. 18-19, 2007.
- [86] F. A. Curlin, "Caution: conscience is the limb on which medical ethics sits," *The American Journal of Bioethics*, vol. 7, no. 6, pp. 30-32, 2007.
- [87] J. W. Gerrard, "Is it ethical for a general practitioner to claim a conscientious objection when asked to refer for abortion?" *Journal of Medical Ethics*, vol. 35, no. 10, pp. 599-602, 2009.
- [88] A. MacIntyre, *After Virtue: A Study in Moral Theory*, University of Notre Dame Press, Notre Dame, Ind, USA, 2nd edition, 1984.
- [89] CBC News, "Alberta doctors bullied by bosses, panel finds," 2012, <http://www.cbc.ca/news/canada/edmonton/story/2012/02/22/edmonton-health-quality-council-report.html>.
- [90] CBC News, "Cancer rates downstream from oilsands to be probed," 2011, <http://www.cbc.ca/news/canada/edmonton/story/2011/08/19/edm-cancer-oilsands-fort-chipewyan-study.html>.
- [91] L. S. Rubenstein and G. J. Annas, "Medical ethics at Guantanamo Bay detention centre and in the US military: a time for reform," *The Lancet*, vol. 374, no. 9686, pp. 353-355, 2009.
- [92] S. Doherty, "History of evidence-based medicine. Oranges, chloride of lime and leeches: barriers to teaching old dogs new tricks," *Emergency Medicine Australasia*, vol. 17, no. 4, pp. 314-321, 2005.
- [93] S. K. Genuis and S. J. Genuis, "Exploring the continuum: medical information to effective clinical practice. Paper I: the translation of knowledge into clinical practice," *Journal of Evaluation in Clinical Practice*, vol. 12, no. 1, pp. 49-62, 2006.
- [94] R. Grol and J. Grimshaw, "From best evidence to best practice: effective implementation of change in patients' care," *The Lancet*, vol. 362, no. 9391, pp. 1225-1230, 2003.
- [95] C. Duncan, S. Langlais, J. Danyluk-Hall, and K. Simonson, "Knowledge translation: empowering health professionals to take the lead," *Journal of Continuing Education in the Health Professions*, vol. 28, no. 4, pp. 282-283, 2008.
- [96] S. J. Genuis, "The proliferation of clinical practice guidelines: professional development or medicine-by-numbers?" *Journal of the American Board of Family Practice*, vol. 18, no. 5, pp. 419-425, 2005.
- [97] J. L. Heilbron, *Dilemmas of an Upright Man: Max Planck and the Fortunes of German Science*, University of California Press, Berkeley, Calif, USA, 1986.
- [98] A. de Valk, *Morality and Law in Canadian Politics: The Abortion Controversy*, Palm Publishers, Dorval, Canada, 1974.
- [99] D. Bell and H. Cunningham, Journal and Proceedings of the Northern Ireland Forum for Ethics in Medicine and Healthcare, 2009, <http://www.qub.ac.uk/methics/journal.html>.
- [100] Calgary Herald, "If doctors who won't kill are "wicked," the world is sick," 2009, <http://www.canada.com/calgaryherald/news/story.html?id=83835868-7f89-40bd-b16e-8bc961d41b39>.
- [101] Canadian Medical Association (CMA), "Code of ethics," 2004, <http://www.cma.ca/code-of-ethics>.

- [102] World Medical Association (WMA), "WMA code of ethics," 2013, <http://www.wma.net/en/30publications/10policies/c8/index.html>.
- [103] B. M. Dickens and R. J. Cook, "Conscientious commitment to women's health," *International Journal of Gynaecology and Obstetrics*, vol. 113, no. 2, pp. 163–166, 2011.
- [104] H. Brody, H. A. Squier, and J. P. Foglio, "Commentary: moral growth in medical students," *Theoretical Medicine*, vol. 16, no. 3, pp. 281–289, 1995.
- [105] G. Webster, "Moral residue," in *Margin of Error: The Ethics of Mistakes in the Practice of Medicine*, S. B. Rubin and L. Zoloth, Eds., pp. 217–232, University Publishing Group, Hagerstown, Md, USA, 2000.
- [106] S. Maguen and B. T. Litz, "Moral injury in veterans of war," *PTSD Research Quarterly*, vol. 23, pp. 1–6, 2012.
- [107] B. T. Litz, N. Stein, E. Delaney et al., "Moral injury and moral repair in war veterans: a preliminary model and intervention strategy," *Clinical Psychology Review*, vol. 29, no. 8, pp. 695–706, 2009.
- [108] C. M. Sinclair and Provincial Court of Manitoba, "The report of the Manitoba pediatric cardiac surgery inquest: an inquiry into twelve deaths at the Winnipeg Health Sciences Centre," 2000, <http://www.pediatriccardiacinquest.mb.ca/>.
- [109] C. Varcoe, B. Pauly, J. Storch, L. Newton, and K. Makaroff, "Nurses' perceptions of and responses to morally distressing situations," *Nursing Ethics*, vol. 19, pp. 488–500, 2012.
- [110] C. Rushton, A. W. Kaszniak, and J. Halifax, "A framework for understanding moral distress among palliative care clinicians," *Journal of Palliative Medicine*, vol. 16, no. 9, pp. 1074–1079, 2013.
- [111] T. A. Cavaliere, B. Daly, D. Dowling, and K. Montgomery, "Moral distress in neonatal intensive care unit RNs," *Advances in Neonatal Care*, vol. 10, no. 3, pp. 145–156, 2010.
- [112] C. Mitton, S. Peacock, J. Storch, N. Smith, and E. Cornelissen, "Moral distress among healthcare managers: conditions, consequences and potential responses," *Healthcare Policy*, vol. 6, no. 2, pp. 99–112, 2010.
- [113] D. Silove, "Doctors and the state: lessons from the Biko case," *Social Science and Medicine*, vol. 30, no. 4, pp. 417–429, 1990.
- [114] G. Higgins, "We are not respected for our real value," *Alberta Doctors' Digest*, vol. 29, pp. 2–4, 2004.
- [115] H. Fernandez-Lynch, *Conflicts of Conscience in Health Care: An Institutional Compromise*, The MIT Press, Cambridge, Mass, USA, 2008.
- [116] Constitution Act, "Canadian charter of rights and freedoms," 1982, <http://laws-lois.justice.gc.ca/eng/Const/page-15.html>.
- [117] Supreme Court Judgments, "R. v. Big M Drug Mart Ltd," Section 7, Article #95, 1985, <http://scc.lexum.org/decisia-scc-csc/scc-csc/scc-csc/en/item/43/index.do>.
- [118] United Nations (UN), "Universal declaration of human rights," 1948, <http://www.un.org/en/documents/udhr/>.
- [119] D. Foggo and A. Taher, "Muslim medical students get picky," *The Times Online*, 2007, <http://www.timesonline.co.uk/tol/news/uk/health/article2603966.ece>.
- [120] A. Jameton, "Dilemmas of moral distress: moral responsibility and nursing practice," *Clinical Issues in Perinatal and Women's Health Nursing*, vol. 4, no. 4, pp. 542–551, 1993.
- [121] M. Angell, *The Truth about the Drug Companies: How They Deceive Us and What to Do About It*, Random House, New York, NY, USA, 2004.
- [122] M. Angell, "Is academic medicine for sale?" *The New England Journal of Medicine*, vol. 342, no. 20, pp. 1516–1518, 2000.
- [123] R. Moynihan, "Who pays for the pizza? Redefining the relationships between doctors and drug companies. 2: disentangle-ment," *The British Medical Journal*, vol. 326, no. 7400, pp. 1193–1196, 2003.
- [124] K. Outterson, "Punishing health care fraud—is the GSK settlement sufficient?" *The New England Journal of Medicine*, vol. 367, pp. 1082–1085, 2012.
- [125] V. Cogliano, Y. Grosse, R. Baan et al., "Carcinogenicity of combined oestrogen-progestagen contraceptives and menopausal treatment," *The Lancet Oncology*, vol. 6, no. 8, pp. 552–553, 2005.
- [126] C. Kahlenborn, F. Modugno, D. M. Potter, and W. B. Severs, "Oral contraceptive use as a risk factor for premenopausal breast cancer: a meta-analysis," *Mayo Clinic Proceedings*, vol. 81, no. 10, pp. 1290–1302, 2006.
- [127] V. Moreno, E. X. Bosch, N. Muñoz et al., "Effect of oral contraceptives on risk of cervical cancer in women with human papillomavirus infection: the IARC multicentric case-control study," *The Lancet*, vol. 359, no. 9312, pp. 1085–1092, 2002.
- [128] D. Margel and N. E. Fleshner, "Oral contraceptive use is associated with prostate cancer: an ecological study," *BMJ Open*, vol. 1, no. 2, Article ID e000311, 2011.
- [129] H. K. Weir, L. D. Marrett, N. Kreiger, G. A. Darlington, and L. Sugar, "Pre-natal and peri-natal exposures and risk of testicular germ-cell cancer," *International Journal of Cancer*, vol. 87, pp. 438–443, 2000.
- [130] J. Baillargeon, D. K. McClish, P. A. Essah, and J. E. Nestler, "Association between the current use of low-dose oral contraceptives and cardiovascular arterial disease: a meta-analysis," *Journal of Clinical Endocrinology and Metabolism*, vol. 90, no. 7, pp. 3863–3870, 2005.
- [131] J. P. Forman, M. J. Stampfer, and G. C. Curhan, "Diet and lifestyle risk factors associated with incident hypertension in women," *The Journal of the American Medical Association*, vol. 302, no. 4, pp. 401–411, 2009.
- [132] C. Le-Ha, L. J. Beilin, S. Burrows et al., "Oral contraceptive use in girls and alcohol consumption in boys are associated with increased blood pressure in late adolescence," *European Journal of Preventive Cardiology*, vol. 20, no. 6, pp. 947–955, 2013.
- [133] M. Etminan, B. Takkouche, F. C. Isorna, and A. Samii, "Risk of ischaemic stroke in people with migraine: systematic review and meta-analysis of observational studies," *The British Medical Journal*, vol. 330, no. 7482, pp. 63–65, 2005.
- [134] C. Panzer, S. Wise, G. Fantini et al., "Impact of oral contraceptives on sex hormone-binding globulin and androgen levels: a retrospective study in women with sexual dysfunction," *Journal of Sexual Medicine*, vol. 3, no. 1, pp. 104–113, 2006.
- [135] C. W. Wallwiener, L. Wallwiener, H. Seeger, A. O. Mück, J. Bitzer, and M. Wallwiener, "Prevalence of sexual dysfunction and impact of contraception in female German medical students," *Journal of Sexual Medicine*, vol. 7, no. 6, pp. 2139–2148, 2010.
- [136] A. Borgström, V. Od Lind, L. Ekselius, and I. Sundström-Poromaa, "Adverse mood effects of combined oral contraceptives in relation to personality traits," *European Journal of Obstetrics Gynecology and Reproductive Biology*, vol. 141, no. 2, pp. 127–130, 2008.
- [137] M. Gingnell, J. Engman, A. Frick et al., "Oral contraceptive use changes brain activity and mood in women with previous negative affect on the pill—a double-blinded, placebo-controlled randomized trial of a levonorgestrel-containing combined oral contraceptive," *Psychoneuroendocrinology*, vol. 38, no. 7, pp. 1133–1144, 2013.

- [138] T. A. Ternes, P. Kreckel, and J. Mueller, "Behaviour and occurrence of estrogens in municipal sewage treatment plants—II: aerobic batch experiments with activated sludge," *Science of the Total Environment*, vol. 225, no. 1-2, pp. 91-99, 1999.
- [139] S. Kim, "Birth control, water, and women," Huffington Post, 2009, [http://www.huffingtonpost.com/susan-kim/birth-control-water-and-w\\_b\\_385532.html](http://www.huffingtonpost.com/susan-kim/birth-control-water-and-w_b_385532.html).
- [140] X. K. Chen, S. W. Wen, L. M. Sun, Q. Yang, M. C. Walker, and D. Krewski, "Recent oral contraceptive use and adverse birth outcomes," *European Journal of Obstetrics Gynecology and Reproductive Biology*, vol. 144, no. 1, pp. 40-43, 2009.
- [141] L. Keski-Nisula, J. Pekkanen, B. Xu, T. Putus, and P. Koskela, "Does the pill make a difference? Previous maternal use of contraceptive pills and allergic diseases among offspring," *Allergy*, vol. 61, no. 12, pp. 1467-1472, 2006.
- [142] T. P. Bouchard and S. J. Genuis, "Personal fertility monitors for contraception," *Canadian Medical Association Journal*, vol. 183, no. 1, pp. 73-76, 2011.
- [143] S. J. Genuis and T. P. Bouchard, "High-tech family planning: reproductive regulation through computerized fertility monitoring," *European Journal of Obstetrics Gynecology and Reproductive Biology*, vol. 153, no. 2, pp. 124-130, 2010.
- [144] J. Wingrove, "Alberta Tories label Wildrose position on conscience rights "frightening"" 2013, <http://www.theglobeandmail.com/news/politics/alberta-tories-label-wildrose-position-on-conscience-rights-frightening/article1370953/>.
- [145] U.K. General Medical Council, "Good medical practice," 2013, [http://www.gmc-uk.org/guidance/news\\_consultation/20477.asp](http://www.gmc-uk.org/guidance/news_consultation/20477.asp).
- [146] B. Starfield, "Is US health really the best in the world?" *The Journal of the American Medical Association*, vol. 284, no. 4, pp. 483-485, 2000.
- [147] G. R. Baker, P. G. Norton, V. Flintoft et al., "The Canadian adverse events study: the incidence of adverse events among hospital patients in Canada," *Canadian Medical Association Journal*, vol. 170, no. 11, pp. 1678-1686, 2004.
- [148] Institute of Medicine, *To Err Is Human: Building a Safer Health System*, National Academy Press, Washington, DC, USA, 2000.
- [149] C. P. Landrigan, G. J. Parry, C. B. Bones, A. D. Hackbarth, D. A. Goldmann, and P. J. Sharek, "Temporal trends in rates of patient harm resulting from medical care," *The New England Journal of Medicine*, vol. 363, no. 22, pp. 2124-2134, 2010.
- [150] H. McGavock, "Prescription-related illness—a scandalous pandemic" *Journal of Evaluation in Clinical Practice*, vol. 10, no. 4, pp. 491-497, 2004.
- [151] T. A. Brennan, L. L. Leape, N. M. Laird et al., "Incidence of adverse event and negligence in hospitalized patients. Results of the Harvard medical practice study I," *The New England Journal of Medicine*, vol. 324, no. 6, pp. 370-376, 1991.
- [152] D. L. Kunac, J. Kennedy, N. Austin, and D. Reith, "Incidence, preventability, and impact of Adverse Drug Events (ADEs) and potential ADEs in hospitalized children in New Zealand: a prospective observational cohort study," *Paediatric Drugs*, vol. 11, no. 2, pp. 153-160, 2009.
- [153] S. J. Genuis and S. K. Genuis, "Resisting cookbook medicine," *British Medical Journal*, vol. 329, article 179, 2004.
- [154] N. K. Choudhry, H. T. Stelfox, and A. S. Detsky, "Relationships between authors of clinical practice guidelines and the pharmaceutical industry," *The Journal of the American Medical Association*, vol. 287, no. 5, pp. 612-617, 2002.
- [155] D. Healy, *Pharmageddon*, University of California Press, Los Angeles, Calif, USA, 2012.
- [156] F. Dostoyevsky, *The Brothers Karamazov*, translation: The Grand Inquisitor, R. Pevear and L. Volokhonsky, Farrar, Straus and Giroux, New York, NY, USA, 1990.
- [157] N. F. K. Gemes and S. May, Eds., *Nietzsche on Freedom and Autonomy*, Oxford University Press, New York, NY, USA, 2009.
- [158] Canadian Medical Foundation, "Physician health and well-being," 2009, <http://www.medicalfoundation.ca/en/physician-health-and-well-being/>.



# Exhibit 387



---

**The relationship between moral distress, professional stress, and intent to stay in the nursing profession**

Fariba Borhani<sup>1</sup>, Abbas Abbaszadeh<sup>2</sup>, Nouzar Nakhaee<sup>3</sup>, Mostafa Roshanzadeh<sup>4\*</sup>

<sup>1</sup> Assistant Professor, Faculty of Nursing & Midwifery, Medical Ethics and Law Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran;

<sup>2</sup> Professor, Faculty of Nursing & Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran;

<sup>3</sup> Professor, Kerman University of Medical Sciences, Kerman, Iran;

<sup>4</sup> Faculty member of Birjand University of Medical Sciences, Birjand, Iran.

**Corresponding Author:**

Mostafa Roshanzadeh

Address: Birjand, Ghafare Avenue, Birjand University of Medical Sciences, Birjand, Iran.

Email: [mroshanzadeh62@gmail.com](mailto:mroshanzadeh62@gmail.com)

Tel: 98 09397952522

Fax: 98 05618825875

Received: 26 Aug 2013

Accepted: 12 Dec 2013

Published: 18 Feb 2014

J Med Ethics Hist Med, 2014, 7:4

© 2014 Mostafa Roshanzadeh et al.; licensee Tehran Univ. Med. Sci.

**Abstract**

Moral distress and professional stress are common problems that can have adverse effects on nurses, patients, and the healthcare system as a whole. Thus, this cross-sectional study aims to examine the relationship between moral distress, professional stress, and intent to stay in the nursing profession. Two hundred and twenty full-time nurses employed at teaching hospitals in the eastern regions of Iran were studied. A 52-item questionnaire based on Corley's Moral Distress Scale, Wolfgang's Health Professions Stress Inventory and Nedd Questionnaire on Intent to Stay in the Profession was used in the study. Additionally, demographic details of the study population were collected. No significant correlation was observed between the intensity and frequency of moral distress, professional stress, and intent to stay in the profession among nurses ( $P > 0.05$ ). There was a significant correlation between moral distress, professional stress, and age, number of years in service and work setting ( $P < 0.05$ ). Given the important effect of moral distress and professional stress on nurses, in addition to the educational programs for familiarization of nurses with these concepts, it is recommended that strategies be formulated by the healthcare system to increase nurses' ability to combat their adverse effects.

**Keywords:** *moral distress, professional stress, intent to stay, nursing profession, nursing ethics*

### **Introduction**

There is a high level of human contact in the nursing profession, and therefore nurses are inevitably faced with issues like moral distress and professional stress. Moral distress is created when the conditions contradict an individual's beliefs and inner moral values, and he or she has to act against those values as a result of those conditions and real limitations (1). The occurrence of moral distress can entail different repercussions for nurses, patients, and healthcare organizations (2). In facing these conditions, nurses may experience sadness, contradiction, futility, and affliction. Prolonging these conditions can lead to exhaustion of their resistance resources and cause dissatisfaction with the workplace. Those who continue to work despite these conditions experience stress and burnout along with dissatisfaction (3). Stress is a well-known phenomenon in the nursing profession that can entail positive as well as negative consequences. Professional stress can be created under different conditions such as moral distress, nursing shortages, and organizational limitations, and affect nurses directly, followed by the patients and finally the healthcare system (4). The dissatisfaction of nurses with their workplace resulting from moral distress and professional stress may lead to absenteeism, and strengthen the thought and desire to resign and leave the profession (5). In addition to these conditions, limited human resources, lack of support systems for nurses in clinical environments, organizational pressures, and the feeling of guilt when they are unable to provide quality care, can all cause the thought and desire to leave the profession to turn into action (6).

Leaving the profession can have different effects on the healthcare system. Shortage of skilled human resources can cause a decline in the quality of care and cause financial and legal challenges for the health service providers, and in a vicious circle, increase moral distress and professional stress in the remaining nurses (7).

The importance of moral distress and professional stress, and their relationship with intent to stay in the nursing profession are reviewed in this article. Studies conducted on the moral distress reveal its high prevalence in nurses with different rates of intensity and frequency in different clinical environments. Evidence shows that there is a much higher level of moral distress in special care units where conditions of patients are more critical and nurses have higher responsibility (8-14).

In their 2005 study, Elpern et al. investigated moral distress in critical care units. While reporting high levels of moral distress among nurses, they stated that conditions conducive to moral distress

created a kind of reluctance in nurses for performing nursing care (8). Lazzarin et al. reported high levels of moral distress in nurses in oncology and pediatric hematology units (9). Corley also stated that the moral climate in nurses' working environment plays an important role in their level of moral distress (10). Also, the ethical climate in the workplace is identified as a factor affecting moral distress with consequences like burnout, job dissatisfaction, and professional stress, forcing nurses to leave their profession (1, 15, 16).

Review of studies in connection with stress indicates that stress is a common phenomenon in the nursing profession. A person's mental status and self-satisfaction are directly related to the intensity of stressful factors, and circumstances such as inadequate logistics and work pressure are identified as important factors in creating professional stress (17-19). Healy et al. investigated workplace stressors and their effects on job satisfaction in nurses, and concluded that this effect existed (20).

Cummings investigated the relationship between moral distress, professional stress, and critical care unit nurses leaving the profession, and concluded that high levels of moral distress and professional stress are associated with nurses leaving the profession (3).

Considering the religious and cultural differences between Iranian nurses and nurses from other countries, and given the different organizational structures and managerial patterns in the healthcare system in Iran, this study was conducted to examine levels of moral distress and professional stress and their relationship with the intent to stay in the profession in Iranian nurses.

#### *Theories of moral distress and intent to stay*

##### *Moral distress theory*

Moral distress is a concept first introduced by Jameton (21). He believed that when a person is aware of the right ethical course of action but is prevented by organizational constraints from taking that course, he is faced with moral distress (21). The organizational constraints in his opinion were: time limitations, lack of support of nurses by the management, organizational policies and procedures, and legal limitations. Jameton identified different conditions that cause moral distress including: unnecessary actions, inadequate performances, entanglements and conflicts with the patient's family requirements, and making the decision to end a dying patient's life. He then expanded the concept of moral distress and expressed it as initial and reactive distress. Initial distress involves feelings of frustration, anger, and anxiety when people face organizational constraints and come into conflict with others about values.

Reactive distress occurs following initial distress and its negative consequences where the person is unable to perform his duties (20). Based on Jameton's concept of moral distress, Corley et al. presented the theory of moral distress in 2002. They considered the following points in Jameton's theory: 1) nursing is an ethical profession, and 2) a nurse is an ethical person. They considered nursing as an ethical profession with vast moral standards that are reflected in caring and performance standards. When nurses perform as ethical means, they are exposed to moral distress. In their theory, Corley et al. stated how moral distress can affect nurses, patients, and healthcare organizations. When facing moral distress, nurses experience exclusion, depression, and misfortune, and if these conditions persist, they may experience frustration and dissatisfaction with work, and ultimately leave. Also, moral distress can affect the quality of the care provided by nurses and cause nurses to avoid facing the patients in need of quality care. Corley et al. believed that the effects of distress on organizations are connected with job resignations, reduced job satisfaction and quality of care. They also stated that the intensity and frequency of moral distress are different in different situations (21).

#### *Intent to stay in the profession theory*

This theory was presented by Kim et al. in 1996 and was formed on the basis of Vroom's theory of expectancy (22). The main idea is that employees come to an organization with certain expectations and values, and the assumption is that if these expectations are met, then they stay with the company, and if not, they begin to consider leaving. Disinclination to remain can preempt leaving the profession (23). Kim et al. argued that there are three main variables that lead to job satisfaction and organizational commitment including environment, organizational structure, and the individual. Job satisfaction and organizational commitment determine a person's behavior regarding staying in the profession. The environmental variable includes two main factors of relations and opportunities. Relation is associated with the family and a person's responsibility within the group. Opportunity relates to the job market and the ability of workers to adapt to a new profession. The more available the opportunities in other work environments, the less the desire and intention of employees to stay in a profession. The individual variable in this theory includes general education, work motivation, individuals' expectations and positive and negative emotions. Motivation refers to pleasant and unpleasant emotional experiences and whom they may affect. Expectations refer to whether the job can meet a person's beliefs about that job. Other variables include authority, justice, occupational hazards, job stress, salaries, professional growth, advertising opportunities, and social support. These

variables provide a framework for a person's adjustment with working conditions, expectations, independence, a sense of fairness and justice, and opportunity for professional growth. Workers expect to be protected from workplace hazards and stress and be paid well for the job they do. In addition, they prefer to have promotional opportunities and be successful in the system. Ultimately, a social support system affects employees and their decision to stay in the healthcare system.

In any case, the desire to stay in the profession depends on numerous factors, and the relationship between these factors is also important. The main factors are ethical distress and job stress. Professional stress emphasizes personal and organizational factors like occupational motivation, general education, authority, wages and expenses, and professional growth. It appears that organizational structure plays an important role in the accumulation of stressful factors. Ethical distress essentially affects factors like expectations and positive and negative emotions. Generally, this theory is closely related with the individuals' expectations and experiences (21).

#### **Method**

This study was a cross-sectional study aiming to examine the relationship between moral distress, professional stress, and intent to stay in nursing. The participants were assessed in terms of intensity and frequency of moral distress and professional stress, and then the correlation between moral distress, professional stress, and the desire to stay in the profession was analyzed.

#### *Study population and sampling*

Study units included 220 nurses selected by census from two teaching hospitals (Imam Reza and Valiasr) in the city of Birjand. Inclusion criteria included at least one year's experience in clinical wards, minimum level of education as bachelor's degree in nursing, and full-time employment. Study nurses were selected from all clinical wards in these hospitals.

#### *Tools*

Research tools consisted of a 52-item questionnaire containing demographic information as well as three sub-questionnaires based on Corley's Moral Distress Scale (21 questions) (24), Wolfgang's Health Professions Stress Inventory (30 questions) (25), and Nedd Questionnaire on Intent to Stay in the Profession (1 question) (7).

The first section was the Moral Distress Scale, designed by Corley et al. in 1995. The preliminary form of this questionnaire comprises 38 items, but in this study, the 21-item brief form developed by Corley & Hamrick in 2007 was used (10). The second section consisted of a 30-item Professional Stress Questionnaire, designed by Wolfgang in 1998 (25). The third section included one 4-option



question that assessed the desire to continue working as nurses, designed by Nedd in 2006 (7). The validity and reliability of the 51-item moral distress and professional stress questionnaire were determined by Cummings in 2009 (3). Its reliability was determined to be 95% using Cronbach's alpha. The moral distress and professional stress questionnaire was in the form of 51 continuous questions with 6-point Likert answers including 6 options in intensity and 6 in frequency dimensions. The options in the intensity dimension were (0 to 5) from "not at all" to "very much", and in the frequency dimension were (0 to 5) from "never" to "frequently". The original questionnaire was in English and was translated in backward-forward fashion. The validity was confirmed using content validity method and the opinions of 10 faculty members familiar with ethical issues. The reliability was calculated using internal consistency method (Cronbach's alpha) and reported to be 0.93.

#### Data collection

After obtaining written legal permissions and ethical codes from affiliated hospitals, the questionnaires were given to the nurses, and collected by the researcher after completion. This process took 14 days (from March 29th to April 12th, 2012). All participating nurses completed the questionnaire, and all questionnaires were collected. Data obtained from questionnaires were registered in the SPSS version 16 software, and descriptive statistics (mean, standard deviation, frequency, frequency percentage) and inferential statistics (Pearson's correlation, independent t-test, one-way ANOVA, and so on) were used to analyze the data to achieve the study objectives.

#### Ethical considerations

The study proposal was approved by the Ethics Committee of Kerman University of Medical Sciences (Ethical Code: K90.477) and legal permissions were obtained prior to collection of data. The participants were briefed on the voluntary nature of their participation in the study and were provided with all the necessary information on study objectives and how to complete the questionnaires before beginning to do so. Furthermore, participants were asked not to write their names on questionnaires and were informed that their personal information would be confidential.

## Results

#### Demographic characteristics

Demographic characteristics of the study units included age, gender, ward, number of years in service, and type of employment. The age of participating nurses ranged from 23 to 47 years, and the mean age was 31.12 (SD = 5.13) years. The highest number of years in service was 24 years and the lowest was 1 year, with the mean of 6.54 years (SD = 4.4). Seven wards were recognized and

nurses were divided into 7 groups accordingly (table 1), and in terms of type of employment, nurses were divided into 3 groups of official, contractual, and project-based (table 2).

**Table 1 - Responses by clinical unit**

Work setting	No.	(%)
Surgical	65	(29.5)
Critical Care	81	(36.8)
Pediatrics	7	(3.2)
Medical	33	(15)
Emergency	20	(9.1)
Obstetrics	6	(2.7)
Psycho-Medicine	8	(3.6)
Total	220	(100)

In terms of education level, all participants had bachelor's degree in nursing.

**Table 2- Responses by type of the employment**

Type of employment	No.	(%)
Official	105	(47.7)
Contractual	85	(38.6)
Project-Based	30	(13.6)
Total	220	(100)

*Intensity and frequency of moral distress, professional stress, and intent to stay in nursing profession*

The results reveal mean moral distress intensity of 2.25 (SD = 0.6) and a mean moral distress frequency of 2.11 (SD = 0.56) (total intensity and frequency ranged from 0 to 5). In terms of stress, the mean intensity of professional stress was 2.21 (SD = 0.58) from a total range of 0 to 5, and the mean frequency of stress was 2.26 (SD = 0.63) from a total range of 0 to 5.

In terms of intent to stay in the profession, study units were divided into 4 groups: 12.3% were inclined to leave the profession as soon as possible, 26.8% stated that they may leave the organization in the coming year, 22.7% expressed that under no circumstances would they leave the organization voluntarily, and 32.3% said that they had plans to stay with the organization for as long as possible.

There was a significant correlation between the mean total moral distress and the mean total professional stress ( $P < 0.05$ ), and the correlation coefficient was calculated at 0.6. No significant correlation was observed between the total scores of moral distress, professional stress, and intent to stay in the profession ( $P > 0.05$ ) (tables 3 & 4).

**Table 3- Analysis of variance examining the relationship between the mean score of moral distress and intent to stay**

Intent to stay	NO	Mean	(SD)	Mean (MD intensity)	(SD)	MD Frequency)
I plan to leave the institution as soon as possible	27.06	(12.3)	2.16	(0.57)	2.2	(0.53)
I may leave the organization within the next year	58.96	(26.8)	2.24	(0.57)	2.13	(0.56)
Under no circumstances would I voluntarily leave the organization	49.94	(22.7)	2.32	(0.65)	2.04	(0.56)
I plan to stay with this organization for as long as possible	71.06	(32/3)	2.24	(0.63)	2.11	(0.57)
No response	12.98	(5.9)				
Total	220	(100)				

NO=Frequency; MD= moral distress; SD= standard deviation.

**Table 4- Analysis of variance examining the relationship between mean score of professional stress and intent to stay**

Intent to stay (SD)	NO	Mean	(SD)	Mean (MD intensity)	(SD)	MD Frequency)
I plan to leave the institution as soon as possible	27.06	(12.3)	2.29	(0.58)	2.26	(0.56)
I may leave the organization within the next year	58.96	(26.8)	2.14	(0.57)	2.11	(0.55)
Under no circumstances would I voluntarily leave the organization	49.94	(22.7)	2.35	(0.73)	2.27	(0.53)
I plan to stay with this organization for as long as possible	71.06	(32/3)	2.27	(0.64)	2.21	(0.67)
No response	12.98	(5.9)				
Total	220	(100)				

NO=Frequency; MD= moral distress; SD= standard deviation.

Mean and standard deviation of study units answering the questionnaire:

In assessing moral distress, the highest means in distress intensity and frequency were related to the question "I find myself caring for the emotional needs of patients" (for intensity  $2.65 \pm 1.41$ ), and for frequency  $(2.52 \pm 1.48)$ . The lowest means in distress intensity and frequency were related to the question "I have experienced conflicts with supervisors and/or administrators at work" (for intensity  $1.78 \pm 1.33$ , and for frequency  $(1.77 \pm 1.31)$ ). In assessing professional stress, the highest means in stress intensity and frequency were

related to the question "I have found myself in situations where there was not enough staff to adequately provide the necessary services" (for intensity  $2.83 \pm 1.66$ , and for frequency  $(2.83 \pm 1.66)$ ). In terms of stress, the lowest level of stress was related to the question "I have let medical students perform painful procedures on patients solely to increase their skill." ( $1.59 \pm 1.48$ ) and in terms of frequency, the lowest level of stress was related to question "I have increased the dose of intravenous morphine in end of life situations that I believe will hasten the patient's death" ( $1.7 \pm 1.51$ ) (table 5).

**Table 5- Mean and standard deviation of study units answering the questionnaire**

Question	Intensity Mean (SD)	Frequency Mean (SD)
1-I find myself providing less than optimal care due to pressures to reduce costs.	2.14 (1.56)	2.16 (1.43)
2-I have so much work to do that I cannot do everything well.	2.17 (1.46)	2.15 (1.4)
3-I have asked the patient's family about donating organs when the patient's death is inevitable.	2.05 (1.58)	1.93 (1.5)
4-I have experienced conflicts with supervisors and/or administrators at work.	1.78 (1.33)	1.77 (1.31)
5-I find myself caring for the emotional needs of patients.	2.65 (1.41)	2.52 (1.48)
6-I have let medical students perform painful procedures on patients solely to increase their skill.	1.65 (1.56)	1.66 (1.54)
7-I find myself dealing with "difficult" patients.	2.59 (1.31)	1.37 (2.62)
8-I have provided care that does not relieve the patient's suffering because I fear that increasing the dose of pain medication will cause death.	2.1 (1.41)	1.9 (1.38)
9-I have found myself in situations where there was not enough staff to adequately provide the necessary services.	2.83 (1.66)	2.83 (1.66)

*Correlation between moral distress and professional stress and demographic characteristics*

There was a significant correlation between moral distress and age ( $P < 0.05$ ,  $r = -0.2$ ) as well as between professional stress and age ( $P < 0.05$ ,  $r = -0.3$ ). There was a significant correlation between moral distress and number of years in service ( $P < 0.05$ ,  $r = -0.3$ ) and between professional stress and number of years in service ( $P < 0.05$ ,  $r = -0.4$ ). There was a significant correlation between moral distress and work setting ( $P < 0.05$ ) and also between professional stress and work setting ( $P < 0.05$ ).

No significant correlation was observed between moral distress, professional stress, and sex or type of employment ( $P > 0.05$ ).

The highest mean score of moral distress was observed in the pediatric ward ( $2.63 \pm 0.26$ ), and the lowest in emergency ( $1.37 \pm 0.45$ ). Moreover, the highest mean score of professional stress was observed in the psychiatric ward ( $2.85 \pm 0.3$ ), and the lowest in emergency ( $1.64 \pm 0.5$ ).

**Discussion**

The results obtained in this study indicate that despite a medium level of moral distress, nurses did not wish to stay in the profession. Results of other similar studies, however, report a positive correlation between moral distress and the intent to stay in the profession (3, 11, 16, 19). There may be a number of reasons that can explain the difference between this study and similar ones. One of these reasons is that there are several obstacles a person leaving his or her profession in Iran has to face. Special organizational conditions do not make it easy for personnel to leave as and when they decide to. Thus, sometimes complicated stages and hard clerical and legal processes may deter personnel from leaving, which can be due to difficult employment regulations and huge costs of employing and training these people. As there is a shortage of jobs compared to demands in Iran, it is likely that people leaving their jobs may not be able to find another suitable one. People leaving employment can face several problems including financial hardships, and the inability to find another job would make daily life extremely difficult for them. All these situations and obstacles reduce nurses' motivation and desire to leave the profession and force them to remain in the profession despite all the moral distress they may have to tolerate in the workplace.

Investigation of the intensity and frequency of moral distress in study units shows they are in average range. In order to investigate the level of moral distress, 21 questions were posed, and question number 12 "I find myself caring for the emotional needs of patients" was the most relevant and attracted the highest mean intensity and frequency of moral distress in nurses, and was

related to concern for patients' feelings and emotions. In the opinion of study units, emotional involvement with patients' problems and their relatives is an important source of stress. The lowest mean score for distress in terms of intensity and frequency pertained to question 4 "I have experienced conflicts with supervisors and/or administrators at work". Previous studies also considered the emotional problems of patients and their relatives and conflicts with supervisors and management as important factors in moral distress (26, 27). The level of effectiveness of these factors in creating distress depends on the type of workplace and characteristics of people. In general, the level of moral distress in this study was in the medium range. In most studies, the level of moral distress was different depending on the type of ward, and in most cases it ranged from medium to high (8, 28). In this study, the moral distress score related to all wards was medium, whereas in other studies this score appears to be higher. This may have been due to assessment of the nurses in special wards such as special care units where ethical distress would surely be higher compared to other wards.

Investigation of the intensity and frequency of professional stress in study units revealed a medium level of professional stress in nurses. Other studies place this level in the medium to high range {30-32}. For assessment of professional stress, 30 questions were posed {21 to 51}, of which the highest stress in terms of intensity and frequency was related to question number 35 "I have found myself in situations where there was not enough staff to adequately

provide the necessary services" (29). In fact, shortage of human resources can be one of the most important factors in creating stress. Many studies introduce shortage of human resources and high workload as important factors in creation of stress in workplace (29, 30).

The lowest level of stress in terms of intensity was related to question 26 "I have let medical students perform painful procedures on patients solely to increase their skill". This question created the least amount of stress in the nurses under study. The lowest level of stress in terms of frequency pertained to question 34 "I have increased the dose of intravenous morphine in end of life situations that I believe will hasten the patient's death". In his study, Burnard et al. also regarded patient care complications as an effective factor in creation of professional stress (30). Given the particular belief system in the nurses in the present study, cases of euthanasia do not occur in Iran because they contradict religious beliefs, and consequently in terms of frequency of professional stress, they are unimportant.

The correlation between moral distress and professional stress proved significant. According to

previous studies, conditions creating distress are also effective in creation of professional stress. Case studies investigating distressing conditions introduce these conditions as effective factors in incidence of professional stress, and find a positive correlation between these variables (27, 29, 31).

Examining the relationship between moral distress, professional stress, and parameters of age and number of years of service revealed a significant and inverse relationship. These results indicate decreasing moral distress and professional stress with increasing age and service years. Studies revealed a significant correlation between these parameters (20, 32-35). These studies state that with increased age and years of service, nurses gain more experience, and in facing moral challenges and stressors, they use effective defensive mechanisms, and thus, they are less affected. Also, with increasing service years, nurses prefer to work in easier environments and avoid moral challenges and high stress. Moreover, in the beginning of their service years, nurses are not sufficiently experienced to face moral challenges and stress, and are often involved and influenced by crisis and confusion. In assessing the relationship between moral distress and type of the ward, the highest level of distress was seen in the pediatric ward (28, 36). However, studies generally consider critical care units as having the highest level of distress for nurses (29, 36). The height of distress in these units is due to particularly acute conditions in these treatment settings that in turn are associated with higher challenges in moral terms. Perhaps in this study, special conditions and vulnerability of children was a factor for higher moral distress in participating nurses. The highest level of professional stress was observed in the psychiatric ward. Studies in this area revealed that stress level is generally higher in treatment settings, and this level is higher still in acute care conditions like critical care units. Psychiatric wards can also have high levels of stress due to peculiarities of treatment and encountering special patients. While our study shows that the level of moral distress and professional stress in the emergency ward is low, other studies regard emergency ward nurses to be faced with high levels of moral distress and professional stress (30, 28, 36). In the present study, it could perhaps be stated that the special characteristics of

this ward have made less time available for nurses to interact with patients, and also higher levels of experience of the emergency ward nurses in facing stressful cases has elevated their capabilities to cope with stressful conditions with less distress and stress.

The present study was carried out in a particular region in Iran and it is necessary to study other parts of the country. Also, sampling was conducted in census method. All these affect the generalizability of results. Given the study method and its analysis, it is no possible to assess the cause and effect relationship between variables.

### **Conclusion**

This study reveals medium levels of moral distress and professional stress in nurses and that the majority of nurses do not intend to leave their profession. On the other hand, there is a significant correlation between moral distress and professional stress. These can be due to different healthcare system structures and working environments, as well as characteristics of people in different geographical locations in Iran. In the present atmosphere, to prevent the spread of moral distress and professional stress and their consequences, the following means ought to be considered: educating and familiarizing nurses with ethical distress and professional stress and factors causing them, setting up ethical committees in clinical and university centers for research into various dimensions of ethical distress, drawing the attention of management particularly in clinical settings to identify cases of ethical distress and professional stress in nurses, and finding suitable means to improve nurses' ability to cope in such situations. While further study is needed to cover other parts of the country, it is recommended that the correlation between leaving the profession and variables like financial status of personnel as well as people's desire to enter the profession be investigated.

### **Acknowledgements**

The authors wish to thank all participating nurses from the teaching hospitals in the city of Birjand. This article is the result of a master's degree thesis.

### **References**

1. Corley M, Minick P, Elswick RK, Jacobs M. Nurse moral distress and ethical work environment. *Nurs Ethics* 2005; 12(4): 381-90.
2. Corley M. Nurse moral distress: a proposed theory and research agenda. *Nurs Ethics* 2002; 9(6): 636-50.
3. Cummings CL. The effect of moral distress on nursing retention in the acute care setting [dissertation]. Florida (USA). University of North Florida; 2009.
4. Currid TJ. The lived experience and meaning of stress in acute mental health nurses. *Br J Nurs* 2008; 17(4): 880-84.
5. Epstein EG, Hamric AB. Moral distress, moral residue, and the crescendo effect. *J Clin Ethics* 2009; 20(4): 330-42.
6. Zuzelo PR. Exploring the moral distress of registered nurses. *Nurs Ethics* 2007; 14(3): 344-59.

7. Nedd N. Perceptions of empowerment and intent to stay. *Nurs Econ* 2006; 24(1): 13-19.
8. Elpern EH, Covert B, Kleinpell R. Moral distress of staff nurses in a medical intensive care unit. *Am J Crit Care* 2005; 14(6): 523-30.
9. Lazzarin M, Biondi A, Di Mauro S. Moral distress in nurses in oncology and haematology units. *Nurs Ethics* 2012; 19(2): 183-95.
10. Corley MC, Hamric, AB. Information on shortened form of Corley's moral distress scale. Unpublished manuscript, University of Virginia. <http://docs.askives.com/what-is-units-of-distress-scale.html> (accessed in 2014)
11. Epstein EG, Delgado S. Understanding and addressing moral distress. *Online J Issues Nurs* 2010; 15(3).
12. Austin W, Lernermeier G, Goldberg L, Bergum V, Johnson MS. Moral distress in healthcare practice: the situation of nurses. *HEC Forum* 2005; 17(1): 33-48.
13. Anonymous. AACN Public policy statement: moral distress. [http://www.aacn.org/WD/practice/Docs/moral\\_distress.pdf](http://www.aacn.org/WD/practice/Docs/moral_distress.pdf) (accessed in 2013).
14. Alspach G. When your work conditions are sicker than your patients. *Crit Care Nurse* 2005; 25(3): 11-14.
15. Aiken LH, Clarke SP, Sloane DM, Sochalski J, Silber JH. Hospital nurse staffing and patient mortality, nurse burnout, and job dissatisfaction. *JAMA* 2002; 288(16): 1987-93.
16. Pauly B, Varcoe C, Storch J, Newton L. Registered nurses' perceptions of moral distress and ethical climate. *Nurs Ethics* 2009; 16(5): 561-73.
17. Hayhurst A, Saylor C, Stuenkel D. Work environment factors and retention of nurses. *J Nurs Care Qual* 2005; 20(3): 283-8.
18. Harris N. Management of work-related stress in nursing. *Nurs stand* 2001; 16(10): 47-52.
19. Rossi AM. Occupational stressors and gender differences. In: Rossi AM, Perrewe PL, Sauter SL (eds). *Stress and Quality of Working Life: Current Perspectives in Occupational Health*. USA: Information Age Publishing; 2009.
20. Healy CM, McKay MF. Nursing stress: the effects of coping strategies and job satisfaction in a sample of Australian nurses. *J Adv Nurs* 31(3): 681- 8.
21. Jameton A. *Nursing Practice: The Ethical Issues*. USA: Prentice Hall; 1984.
22. Kim SW, Price JL, Mueller CW, Watson TW. The determinants of career intent among physicians at a U.S. air force hospital. *Human Relations* 1996; 49(7): 947-76.
23. Vroom VH. *Work and Motivation*. New York: Wiley; 1964.
24. Corley MC, Elswick RK, Gorman M, Clor T. Development and evaluation of a moral distress scale. *J Adv Nurs* 2001; 33(4): 250-6.
25. Wolfgang AP. The health professions stress inventory. *Psychol Reports* 1988; 62(1): 220-2.
26. Andrews DR, Dziegielewski SF. The nurse manager: job satisfaction, the nursing shortage and retention. *J Nurs Manag* 2005; 13(4): 286-95.
27. Rice EM, Rady MY, Hamrick A, Verheijde JL, Pendergast DK. Determinants of moral distress in medical and surgical nurses at an adult acute tertiary care hospital. *J Nurs Manag* 2008; 16(3): 360-73.
28. Janvier A, Nadeau S, Deschênes M, Couture E, Barrington KJ. Moral distress in the neonatal intensive care unit: caregiver's experience. *J perinatol* 2007; 27(4): 203-8.
29. Sterud T, Hem E, Ekeberg O, Lau B. Occupational stressors and its organizational and individual correlates: a nationwide study of Norwegian ambulance personnel. *BMC Emerg med* 2008; 8: 16.
30. Burnard P, Edwards D, Fothergill A, Hannigan B, Coyne D. Community mental health nurses in Wales: self reported stressors and coping strategies. *J Psychiatr Ment Health Nurs* 2000; 7(6): 523-8.
31. Pinikahana J, Happell B. Stress, burnout and job satisfaction in rural psychiatric nurses: a Victorian study. *Aust J Rural Health* 2004; 12(3): 120-5.
32. Redman B, Hill MN. Studies of ethical conflicts by nursing practice settings or roles. *West J Nurs Res* 1997; 19(2): 243-60.
33. Al-Omari O, Saber A, Awad A, Atawi. The impact of unit difference gender and years of stress among staff nurses in Jordan, 2004. <http://faculty.ksu.edu.sa/omar%20omari/research%20paper/the%20impact%20of%20unit%20differences.pdf> (accessed in 2013).
34. Rice PL. *Stress and Health*. USA: Cengage Learning; 1998.
35. Ferrell BR. Understanding the moral distress of nurses witnessing medically futile care. *Oncol Nurs Forum* 2006; 33(5): 922-30.
36. Guitierrez KM. Critical care nurses' perceptions of and responses to moral distress. *Dimens Crit Care Nurs* 2005; 24(5): 229-41.

# Exhibit 388



Prim Care Companion CNS Disord. 2015; 17(5): 10.4088/PCC.15f01840.

PMCID: PMC4732308

Published online 2015 Oct 22.

PMID: [26835164](#)

doi: [10.4088/PCC.15f01840: 10.4088/PCC.15f01840]

## Impact of the Doctor-Patient Relationship

[Fallon E. Chipidza](#), BA, [Rachel S. Wallwork](#), BA, and [Theodore A. Stern](#), MD<sup>✉</sup>

<sup>✉</sup>Corresponding author.

*Corresponding author:* Theodore A. Stern, MD, Harvard Medical School Massachusetts General Hospital, Department of Psychiatry, Massachusetts General Hospital, Fruit St, WRN 605, Boston, MA 02114 ([tsstern@partners.org](mailto:tsstern@partners.org)).

Received 2015 May 21; Accepted 2015 Jun 12.

Copyright © 2015, Physicians Postgraduate Press, Inc.

### Clinical Points

- Trust, knowledge, regard, and loyalty are the 4 elements that form the doctor-patient relationship, and the nature of this relationship has an impact on patient outcomes.
- Factors affecting the doctor-patient relationship can be patient-dependent, provider-dependent, health system-dependent, or due to patient-provider mismatch.
- Solutions to each of these factors are rooted in the 4 elements of the doctor-patient relationship.

Have you ever wondered what makes the doctor-patient relationship so powerful? Have you ever considered what you could do to strengthen it or to prevent it from crumbling? Have you thought about the consequences of unsatisfactory or adversarial relationships? If you have, then the following case vignettes and discussion should prove useful.

### CASE VIGNETTE 1

Mr A, a 43-year-old man with a 20-year history of intravenous drug abuse (complicated by hepatitis C and recurrent abscesses), was admitted to the hospital for treatment of acute bacterial endocarditis. His inpatient medical team consulted the addictions consult/substance abuse team, who evaluated and enrolled him in an outpatient methadone clinic. Mr A noted that prior to this assessment he had never had a “decent” conversation about addiction treatment.

### CASE VIGNETTE 2

Ms B, a 75-year-old woman with an alcohol use disorder and gastroesophageal reflux disorder, presented to the oncology clinic following her new (incidental) diagnosis of gastric carcinoma. During the visit, the oncologist explained the importance of assessing the depth of the tumor’s invasion into the gastric wall (ie, to stage the tumor and to decide on treatment options). He noted that if the tumor was confined to the most

11/28/2018

Impact of the Doctor-Patient Relationship

superficial layer of the stomach, it could be excised during an endoscopy. If the tumor went deeper, Ms B would need radiation and/or chemotherapy or surgery. The oncologist arranged for an immediate visit by the surgeon, who informed her that the cancer would almost certainly be invasive and that he planned to remove a large part of her stomach. He described her surgery as very serious, but necessary, because her cancer was very likely to lead to death. As the surgeon turned to write his note in the electronic medical record, Ms B began to shake her head from side to side and cry.

### **WHY IS THE DOCTOR-PATIENT RELATIONSHIP SO IMPORTANT?**

---

The doctor-patient relationship involves vulnerability and trust. It is one of the most moving and meaningful experiences shared by human beings. However, this relationship and the encounters that flow from it are not always perfect.

The doctor-patient relationship has been defined as “a consensual relationship in which the patient knowingly seeks the physician’s assistance and in which the physician knowingly accepts the person as a patient.”<sup>1(p6)</sup> At its core, the doctor-patient relationship represents a fiduciary relationship in which, by entering into the relationship, the physician agrees to respect the patient’s autonomy, maintain confidentiality, explain treatment options, obtain informed consent, provide the highest standard of care, and commit not to abandon the patient without giving him or her adequate time to find a new doctor. However, such a contractual definition fails to portray the immense and profound nature of the doctor-patient relationship. Patients sometimes reveal secrets, worries, and fears to physicians that they have not yet disclosed to friends or family members. Placing trust in a doctor helps them maintain or regain their health and well-being.

This unique relationship encompasses 4 key elements: mutual knowledge, trust, loyalty, and regard.<sup>2</sup> Knowledge refers to the doctor’s knowledge of the patient as well as the patient’s knowledge of the doctor. Trust involves the patient’s faith in the doctor’s competence and caring, as well as the doctor’s trust in the patient and his or her beliefs and report of symptoms. Loyalty refers to the patient’s willingness to forgive a doctor for any inconvenience or mistake and the doctor’s commitment not to abandon a patient. Regard implies that the patients feel as though the doctor likes them as individuals and is “on their side.” These 4 elements constitute the foundation of the doctor-patient relationship.

### **WHAT IS THE STRUCTURE OF THE DOCTOR-PATIENT RELATIONSHIP?**

---

In their seminal article from 1956, Szasz and Hollender<sup>3</sup> outlined 3 basic models of the doctor-patient relationship.

#### **Active-Passive Model**

The active-passive model is the oldest of the 3 models. It is based on the physician acting *upon* the patient, who is treated as an inanimate object. This model may be appropriate during an emergency when the patient may be unconscious or when a delay in treatment may cause irreparable harm. In such situations, consent (and complicated conversations) is waived.

#### **Guidance-Cooperation Model**

In the guidance-cooperation model, a doctor is placed in a position of power due to having medical knowledge that the patient lacks. The doctor is expected to decide what is in the patient’s best interest and to make recommendations accordingly. The patient is then expected to comply with these recommendations.

#### **Mutual Participation Model**



11/28/2018

Impact of the Doctor-Patient Relationship

The mutual participation model is based on an equal partnership between the doctor and the patient. The patient is viewed as an expert in his or her life experiences and goals, making patient involvement essential for designing treatment. The physician's role is to elicit a patient's goals and to help achieve these goals. This model requires that both parties have equal power, are mutually interdependent, and engage in activities that are equally satisfying to both parties.

While each of these models may be appropriate in specific situations, over the last several decades there has been increasing support for the mutual participation model whenever it is medically feasible.<sup>4</sup>

### HOW DOES THE NATURE AND QUALITY OF THE DOCTOR-PATIENT RELATIONSHIP AFFECT HEALTH OUTCOMES?

---

Gordon and Beresin<sup>5</sup> asserted that poor outcomes (objective measures or standardized subjective metrics that are assessed after an encounter) flow from an impaired doctor-patient relationship (eg, when patients feel unheard, disrespected, or otherwise out of partnership with their physicians<sup>6</sup>). Thus, there are many different outcome measures. However, these measures can be divided into 3 main domains: physiologic/objective measures, behavioral measures, and subjective measures. Examples of outcome measures for each of these categories are shown in [Table 1](#).

Stewart et al<sup>7</sup> noted that the physician's knowledge of the patient's ailments and emotional state is associated positively with whether or not those physical ailments resolve. In this instance, the outcome measure is resolution of symptoms (ie, recovery).

In a follow-up meta-analysis of how doctor-patient communication affected outcomes, Stewart<sup>8</sup> noted that the quality of communication during history-taking and management also affects outcomes (eg, frequency of visits, emotional health, and symptom resolution) and that such communication extended beyond creation of the "plan." The manner in which a physician communicates with a patient (even while gathering information) influences how often, and if at all, a patient will return to that same physician.

Furthermore, the quality of communication between doctor and patient involves assessment of the doctor's willingness to include a patient in the decision-making process, to provide a patient with information programs, and to ask a patient about his or her explanatory model of illness (ie, the perception of the disease as influenced by personal customs and beliefs).<sup>9,10</sup>

### WHAT IS PATIENT SATISFACTION AND HOW IS IT AFFECTED BY THE DOCTOR-PATIENT RELATIONSHIP?

---

Patient satisfaction is defined as "the degree to which the individual regards the health care service or product or the manner in which it is delivered by the provider as useful, effective, or beneficial."<sup>11</sup>

Moreover, all 4 elements of the doctor-patient relationship impact patient satisfaction.

**Trust.** Bennett et al<sup>12</sup> found that, among patients with systemic lupus erythematosus, those who trust and "like" their physician had higher levels of satisfaction. In another study,<sup>13</sup> patients' perceptions of their physician's trustworthiness were the drivers of patient satisfaction.

**Knowledge.** When doctors discovered patient concerns and addressed patient expectations, patient satisfaction increased as it did when doctors allowed a patient to give information.<sup>14,15</sup>

**Regard.** Ratings of a physician's friendliness, warmth, emotional support, and caring have been associated with patient satisfaction.<sup>16-18</sup>

**Loyalty.** Patients feel more satisfied when doctors offer continued support; continuity of care improves patient satisfaction.<sup>13,14</sup>

11/28/2018

Impact of the Doctor-Patient Relationship

## WHICH FACTORS CAN ADVERSELY INFLUENCE THE DOCTOR-PATIENT RELATIONSHIP?

---

While the attributes and benefits of a favorable doctor-patient relationship have been characterized, few studies have provided solutions for an impaired relationship. Therefore, we propose 4 categories (patient factors, provider factors, patient-provider mismatch factors, and systemic factors) that can interfere with the doctor-patient relationship.

Tables 2–5 summarize the major factors in each of these categories, list elements of the doctor-patient relationship affected by each factor, and propose possible solutions; however, these tables are by no means an exhaustive accounting of the nuances of the doctor-patient relationship.

## CASE DISCUSSION

---

The case of Mr A illustrates an exemplary doctor-patient interaction. He had been hospitalized on multiple occasions with complications (eg, hepatitis C, abscesses, and endocarditis) secondary to his underlying disease (intravenous drug abuse). His medical team made an effort to develop their knowledge of the patient and his disease. Consequently, the team was able to recognize and address his underlying problem. Mr A's team demonstrated regard for the patient by making him feel that they were "on his side," and they demonstrated knowledge of his disease, as well of him as a person, resulting in earning his loyalty. Recognizing the gaps in their expertise with regard to addiction management, the medicine team consulted the substance abuse team after Mr A expressed a desire to change his drug use habits in the context of motivational interviewing. Involvement of the substance abuse team is an example of using available resources to overcome the challenge of treating what is generally considered a "frustrating" disease.

Ms B's case is an example of a failure in the doctor-patient relationship. The oncologist started off well by explaining the upcoming diagnostic steps to the patient. The oncologist built trust by explaining the diagnostic procedures that should be performed to better characterize the nature of the cancer, thus demonstrating her competence and understanding of Ms B's disease. The oncologist also increased trust by recognizing her own limits by engaging the surgeon's expertise when needed. However, the interaction between the patient and the surgeon illustrated problems that can arise between the physician and the patient. Since the surgeon had never met the patient before, and the surgeon and the patient had not had a chance to establish trust, neither knew each other and neither had the opportunity to establish loyalty. While it may not be possible for a doctor to develop instant trust and loyalty with a patient (although institutional transference may provide a protective umbrella over the relationship), the doctor in the case of Ms B could have made an effort to demonstrate regard for the patient and to display a desire to know the patient. The surgeon could have started off by asking Ms B open-ended questions about her understanding of her disease, as well as of her fears and expectations regarding her health. This questioning would have allowed the surgeon to create a patient-centered interaction by recognizing and addressing Ms B's thoughts, concerns, and values. The mutual participation model would have allowed the surgeon to build knowledge of the patient as a person and show regard for her. Ms B's responses also would have provided the surgeon with information about her level of health literacy, so the surgeon would be better able to target the discussion to her level of understanding.

The surgeon and the oncologist also failed to present a consistent prognosis for Ms B, undermining her trust in the surgeon and the oncologist's competence and transparency. It is worth acknowledging that sometimes it is difficult to balance the 2 seemingly different roles of a physician: a bearer of bad news that may remove hope versus a healer who cares for and sides with the patient. Neither the surgeon nor the oncologist is necessarily inferior in this context. In fact, the surgeon's intentions were good. The surgeon was attempting to ensure that Ms B was fully informed of all the different outcomes of the suggested procedure. There are no current screening tests for esophageal/gastric cancer, except in a subpopulation of patients with known Barrett's esophagus.<sup>44</sup> By the time most patients present with symptoms, their disease

11/28/2018

Impact of the Doctor-Patient Relationship

is well advanced, so the surgeon was right in informing Ms B of the potential severity of her disease. Delivering bad news, especially for a disease with a relatively unfavorable prognosis, will almost always upset any patient. However, the surgeon should have pointed out all the possible outcomes, including that of a superficial malignant lesion, and he should not have sounded so certain about resecting a large portion of Ms B's stomach, especially prior to endoscopic exploration and disease staging. While the oncologist's assessment could have been overly optimistic, provision of all the possible outcomes by the oncologist as well as the surgeon would have demonstrated concordance among the physicians, thus allowing Ms B to retain trust in her providers. Additionally, during the initial visit, the surgeon could have simply stated the possibility of the disease's seriousness, rather than bluntly stating that the disease would most likely be the cause of her demise. The surgeon and oncologist could then reveal more details at subsequent visits when some loyalty had been established and when more information about the extent of her disease was known. Delaying such information until the next visit would not alter staging or management of the disease. The surgeon was right to inform Ms B, but in this context, the manner and the quantity of information divulged ultimately affected the doctor-patient relationship.

Further, distance arose when the surgeon turned away from Ms B at the end of the meeting to complete the visit note. As the documentation burden increases, doctors feel increased pressure to attend to the computer during patient visits, causing face-to-face interaction to suffer. Doctors may unintentionally display a profound lack of empathy by looking at the computer screen instead of at the patient, especially when the patient is experiencing strong emotions. This act of turning away created not only a failure of regard, but also of loyalty. The physician is abandoning the patient to suffer alone despite the physician's physical presence. In this vignette, the surgeon should have fully addressed Ms B's emotions before working on the note. In other circumstances, the physician may turn note-writing into a collaborative experience with the patient and encourage the patient to correct or to fill in additional information. If the doctor is writing orders for the patient, it may be useful to explicitly explain to the patient what the physician is doing on the computer so the patient can understand that the physician is using the computer to help to provide better care.

## CONCLUSION

---

As our vignettes intended to illustrate, the doctor-patient relationship is a powerful part of a doctor's visit and can alter health outcomes for patients. Therefore, it is important for physicians to recognize when the relationship is challenged or failing. If the relationship is challenged or failing, physicians should be able to recognize the causes for the disruption in the relationship and implement solutions to improve care.

### Potential conflicts of interest:

---

None reported.

### Funding/support:

---

None reported.

### Author contributions:

---

Mss Chipidza and Wallwork contributed equally to the manuscript.

## Footnotes

---

### LESSONS LEARNED AT THE INTERFACE OF MEDICINE AND PSYCHIATRY

The Psychiatric Consultation Service at Massachusetts General Hospital (MGH) sees medical and surgical inpatients with comorbid psychiatric symptoms and conditions. During their twice-weekly rounds, Dr Stern and other members of the Consultation Service discuss diagnosis and management of hospitalized patients with

11/28/2018

Impact of the Doctor-Patient Relationship

complex medical or surgical problems who also demonstrate psychiatric symptoms or conditions. These discussions have given rise to rounds reports that will prove useful for clinicians practicing at the interface of medicine and psychiatry.

**Ms Chipidza** and **Wallwork** are fourth-year medical students at Harvard Medical School, Boston, Massachusetts. **Dr Stern** is chief of the Avery D. Weisman Psychiatry Consultation Service at Massachusetts General Hospital and the Ned H. Cassem professor of psychiatry in the field of psychosomatic medicine/consultation at Harvard Medical School, Boston, Massachusetts.

**Dr Stern** is an employee of the Academy of Psychosomatic Medicine, has served on the speaker's board of Reed Elsevier, is a stock shareholder in WiFiMD (Tablet PC), and has received royalties from Mosby/Elsevier and the Massachusetts General Hospital Psychiatry Academy and McGraw Hill. **Ms Chipidza** and **Wallwork** report no conflicts of interest related to the subject of this article.

## References

1. *QT, Inc v. Mayo Clinic Jacksonville*, 2006 US Dist. LEXIS 33668, at \*10 (ND Ill May 15, 2006)
2. Ridd M, Shaw A, Lewis G, et al. The patient-doctor relationship: a synthesis of the qualitative literature on patients' perspectives. *Br J Gen Pract*. 2009;59(561):e116–e133. [PMCID: PMC2662123] [PubMed: 19341547]
3. Szasz TS, Hollender MH. A contribution to the philosophy of medicine: the basic models of the doctor-patient relationship. *AMA Arch Intern Med*. 1956;97(5):585–592. [PubMed: 13312700]
4. Kaba R, Sooriakumaran P. The evolution of the doctor-patient relationship. *Int J Surg*. 2007;5(1):57–65. [PubMed: 17386916]
5. Gordon C, Beresin EV. The doctor-patient relationship. In: Stern TA, Fava M, Wilens TE, et al., editors. *Massachusetts General Hospital Comprehensive Clinical Psychiatry*. 2nd ed. Philadelphia, PA: Elsevier Health Sciences; 2016. pp. 1–7.
6. Ong LML, de Haes JCJM, Hoos AM, et al. Doctor-patient communication: a review of the literature. *Soc Sci Med*. 1995;40(7):903–918. [PubMed: 7792630]
7. Stewart MA, McWhinney IR, Buck CW. The doctor/patient relationship and its effect upon outcome. *J R Coll Gen Pract*. 1979;29(199):77–81. [PMCID: PMC2159129] [PubMed: 480298]
8. Stewart MA. Effective physician-patient communication and health outcomes: a review. *CMAJ*. 1995;152(9):1423–1433. [PMCID: PMC1337906] [PubMed: 7728691]
9. Evans BJ, Kiellerup FD, Stanley RO, et al. A communication skills programme for increasing patients' satisfaction with general practice consultations. *Br J Med Psychol*. 1987;60(pt 4):373–378. [PubMed: 3426975]
10. Kleinman A, Eisenberg L, Good B. Culture, illness, and care: clinical lessons from anthropologic and cross-cultural research. *Ann Intern Med*. 1978;88(2):251–258. [PubMed: 626456]
11. Patient satisfaction. Biology online web site. [http://www.biology-online.org/dictionary/Patient\\_satisfaction](http://www.biology-online.org/dictionary/Patient_satisfaction). Updated October 2, 2005. Accessed April 28, 2015.
12. Bennett JK, Fuertes JN, Keitel M, et al. The role of patient attachment and working alliance on patient adherence, satisfaction, and health-related quality of life in lupus treatment. *Patient Educ Couns*. 2011;85(1):53–59. [PubMed: 20869188]
13. Dulewicz V, Van Den Assem B. The GP-patient relationship and patient satisfaction. *Br J Healthc Manag*. 2013;19(12):596–600.

11/28/2018

Impact of the Doctor-Patient Relationship

14. Korsch BM, Negrete VF. Doctor-patient communication. *Sci Am.* 1972;227(2):66–74. [PubMed: 5044413]
15. Inui TS, Carter WB, Kukull WA, et al. Outcome-based doctor-patient interaction analysis: I. comparison of techniques. *Med Care.* 1982;20(6):535–549. [PubMed: 7109738]
16. Korsch BM, Freemon B, Negrete VF. Practical implications of doctor-patient interaction analysis for pediatric practice. *Am J Dis Child.* 1971;121(2):110–114. 10.1001/archpedi.1971.02100130064006. [PubMed: 5542848]
17. Gesell SB, Wolosin RJ. Inpatients' ratings of care in 5 common clinical conditions. *Qual Manag Health Care.* 2004;13(4):222–227. [PubMed: 15532516]
18. Cousin G, Schmid Mast M, Roter DL, et al. Concordance between physician communication style and patient attitudes predicts patient satisfaction. *Patient Educ Couns.* 2012;87(2):193–197. [PubMed: 21907529]
19. Oakley BA. In: *Pathological Altruism.* Oakley B, Knafo A, Madhavan G, editors. New York, NY: Oxford University Press; 2012.
20. Singer PA, Martin DK, Kelner M. Quality end-of-life care: patients' perspectives. *JAMA.* 1999;281(2):163–168. [PubMed: 9917120]
21. Gawande A. *Being Mortal: Medicine and What Matters in the End.* New York, NY: Metropolitan Books; 2014.
22. Weisner C, Mertens J, Parthasarathy S, et al. Integrating primary medical care with addiction treatment: a randomized controlled trial. *JAMA.* 2001;286(14):1715–1723. [PMCID: PMC3056510] [PubMed: 11594896]
23. Groves JE, Beresin EV. Difficult patients, difficult families. *New Horiz-Sci Pract.* 1998;6(4):331–343.
24. Wallace LS, Lennon ES. American Academy of Family Physicians patient education materials: can patients read them? *Fam Med.* 2004;36(8):571–574. [PubMed: 15343418]
25. Williams MV, Davis T, Parker RM, et al. The role of health literacy in patient-physician communication. *Fam Med.* 2002;34(5):383–389. [PubMed: 12038721]
26. Ratanawongsa N, Roter D, Beach MC, et al. Physician burnout and patient-physician communication during primary care encounters. *J Gen Intern Med.* 2008;23(10):1581–1588. [PMCID: PMC2533387] [PubMed: 18618195]
27. Halbesleben JRB, Rathert C. Linking physician burnout and patient outcomes: exploring the dyadic relationship between physicians and patients. *Health Care Manage Rev.* 2008;33(1):29–39. [PubMed: 18091442]
28. Irving JA, Dobkin PL, Park J. Cultivating mindfulness in health care professionals: a review of empirical studies of mindfulness-based stress reduction (MBSR) *Complement Ther Clin Pract.* 2009;15(2):61–66. [PubMed: 19341981]
29. Krasner MS, Epstein RM, Beckman H, et al. Association of an educational program in mindful communication with burnout, empathy, and attitudes among primary care physicians. *JAMA.* 2009;302(12):1284–1293. [PubMed: 19773563]
30. Kjeldmand D, Holmström I. Balint groups as a means to increase job satisfaction and prevent burnout among general practitioners. *Ann Fam Med.* 2008;6(2):138–145. [PMCID: PMC2267420] [PubMed: 18332406]

11/28/2018

Impact of the Doctor-Patient Relationship

31. Shanafelt T, Dyrbye L. Oncologist burnout: causes, consequences, and responses. *J Clin Oncol*. 2012. 30(11):1235–1241. []
32. Kushner RF, Kessler S, McGaghie WC. Using behavior change plans to improve medical student self-care. *Acad Med*. 2011;86(7):901–906. [PMCID: PMC3128665] [PubMed: 21617509]
33. O’Leary KJ, Wayne DB, Haviley C, et al. Improving teamwork: impact of structured interdisciplinary rounds on a medical teaching unit. *J Gen Intern Med*. 2010;25(8):826–832. [PMCID: PMC2896605] [PubMed: 20386996]
34. Baker DP, Salas E, King H, et al. The role of teamwork in the professional education of physicians: current status and assessment recommendations. *Jt Comm J Qual Patient Saf*. 2005;31(4):185–202. [PubMed: 15913126]
35. Weech-Maldonado R, Morales LS, Elliott M, et al. Race/ethnicity, language, and patients’ assessments of care in Medicaid managed care. *Health Serv Res*. 2003;38(3):789–808. [PMCID: PMC1360917] [PubMed: 12822913]
36. Ferguson WJ, Candib LM. Culture, language, and the doctor-patient relationship. *Fam Med*. 2002;34(5):353–361. [PubMed: 12038717]
37. Meeuwesen L, Harmsen JAM, Bernsen RMD, et al. Do Dutch doctors communicate differently with immigrant patients than with Dutch patients? *Soc Sci Med*. 2006;63(9):2407–2417. [PubMed: 16928417]
38. Campbell A, Sullivan M, Sherman R, et al. The medical mission and modern cultural competency training. *J Am Coll Surg*. 2011;212(1):124–129. [PubMed: 21115375]
39. Wang S-M, Caldwell-Andrews AA, Kain ZN. The use of complementary and alternative medicines by surgical patients: a follow-up survey study. *Anaesth Analg*. 2003;97(4):1010–1015. []
40. Gordon NP, Sobel DS, Tarazona EZ. Use of and interest in alternative therapies among adult primary care clinicians and adult members in a large health maintenance organization. *West J Med*. 1998;169(3):153–161. [PMCID: PMC1305198] [PubMed: 9771154]
41. Astin JA, Marie A, Pelletier KR, et al. A review of the incorporation of complementary and alternative medicine by mainstream physicians. *Arch Intern Med*. 1998;158(21):2303–2310. [PubMed: 9827781]
42. Kimball B, Joynt J, Cherner D, et al. The quest for new innovative care delivery models. *J Nurs Adm*. 2007;37(9):392–398. [PubMed: 17823572]
43. Patel BK, Chapman CG, Luo N, et al. Impact of mobile tablet computers on internal medicine resident efficiency. *Arch Intern Med*. 2012;172(5):436–438. [PubMed: 22412110]
44. Hvid-Jensen F, Pedersen L, Drewes AM, et al. Incidence of adenocarcinoma among patients with Barrett’s esophagus. *N Engl J Med*. 2011;365(15):1375–1383. [PubMed: 21995385]

## Figures and Tables

---

11/28/2018

Impact of the Doctor-Patient Relationship

**Table 1.****Health Outcome Variables Related to the Doctor-Patient Relationship**

Outcome Category	Outcome Variable
Objective	Blood pressure
	Frequency of visits
	Knowledge/recall
	Serum glucose level
	Serum triglyceride level
	Survival
Behavioral	Adherence to treatment
	Coping
	Emotional status
	Functional status
	Recovery
Subjective	Global health status
	Knowledge
	Pain
	Satisfaction
	Understanding

11/28/2018

Impact of the Doctor-Patient Relationship



11/28/2018

Impact of the Doctor-Patient Relationship

**Table 2.**

Patient Factors That Affect the Doctor-Patient Relationship and Suggested Solutions for an Impaired Relationship

11/28/2018

## Impact of the Doctor-Patient Relationship

Patient Factors	Strains on Relationship	Solutions
New patient	Trust: Not yet established	Regard: Maximize the patient's comfort and feeling of being liked
	Knowledge: The doctor does not know the patient and vice versa	Knowledge: Take time to get to know the patient to maximize your knowledge of the patient
	Loyalty: There has been limited opportunity to demonstrate loyalty	
Poor prognosis	Trust: Medical knowledge and interventions may be exhausted	Trust: Ensure that the patient knows you have done everything possible
	Regard: "Pathologic altruism," in which a physician may damage his or her relationship with a patient if the physician fails to recognize when treatment is futile, but continues to aggressively treat the patient, rather than focus on the patient's goals of care <sup>19</sup>	Loyalty: Do not abandon the patient  Regard: Find out what is important to the patient and work with him or her to maximize the quality of his or her final days <sup>20, 21</sup>
Afflicted with a "frustrating" disease <sup>a</sup>	Trust: The doctor might not trust the patient	Loyalty: Make sure the patient knows that the physician is there for him or her
	Regard: The patient and the physician might not like each other; the patient may feel judged; the doctor might have trouble being empathic	Trust: Educate oneself about the disease in question and the best ways to connect with the patient; create a dedicated team to support the treatment team for a challenging patient; in the case of substance abuse, studies have shown that patients in integrated care groups are more likely to remain abstinent compared to those in independent care groups <sup>22</sup>  Regard: Use motivational interviewing techniques to evaluate a patient's current willingness to change and to keep a patient's goals central to care
"Difficult" patient	Regard: The patient might dislike the physician; the doctor may dislike the patient	Knowledge: The physician should actively evaluate his or her feelings toward the patient ("autognosis" or self-knowledge), which allows the physician to use his or her own emotional reactions toward the patient as

[Open in a separate window](#)

<sup>a</sup>Diseases that are generally considered difficult to treat (eg, substance abuse, substance-induced comorbidity, borderline personality disorder).

<sup>b</sup>Especially if the patient does not have decision-making capacity.

11/28/2018

Impact of the Doctor-Patient Relationship

11/28/2018

Impact of the Doctor-Patient Relationship

**Table 3.**

Provider Factors That Affect the Doctor-Patient Relationship and Suggested Solutions for an Impaired Relationship

11/28/2018

Impact of the Doctor-Patient Relationship

Provider Factors	Strains on Relationship	Solutions
Physician burnout: state of detachment, emotional exhaustion, and lack of work-related fulfillment <sup>26</sup>	<p>Trust: Lack of trust can lead to lower levels of patient satisfaction and to longer recovery times<sup>27</sup>; the behavioral consequences of burnout (eg, ineffective communication) also jeopardize trust and may damage the trust that patients have in a physician's competence</p> <p>Knowledge: Attentive doctors are better able to understand both verbal and nonverbal communication<sup>28</sup>; therefore, burnout, which hinders attentiveness, prevents physicians from appreciating the needs of their patients, thus failing to identify their ailments</p> <p>Regard: It is harder for emotionally exhausted physicians to show affection; when physicians are burned out, their patients are more likely to report that physicians use nonempathic statements<sup>26</sup></p> <p>Loyalty: Patients are less likely to return to a physician who fails to recognize their needs or who fails to regard them as individuals</p>	<p>Trust, knowledge, regard, and loyalty: All 4 elements are dependent upon physician well-being; strategies that improve a doctor's emotional wellness will optimize the doctor-patient relationship (eg, mindfulness meditation techniques, work-hour restrictions, participation in Balint groups, and programs to promote personal health [eg, exercise, nutrition, and sleep])<sup>27, 32</sup></p>
Doctors in training or in early career	<p>Trust: Patients may not trust a doctor's competence due to his or her young appearance or apparent lack of confidence</p> <p>Loyalty: Patients might be reluctant to receive ongoing care from an</p>	<p>Trust: Take the time to explain your clinical reasoning to a patient to demonstrate competence</p> <p>Knowledge: Get to know your patient</p>

11/28/2018

Impact of the Doctor-Patient Relationship

**Table 4.**

Patient/Provider Mismatches That Affect the Doctor-Patient Relationship and Suggested Solutions for an Impaired Relationship

Patient/Provider Mismatches	Strains on Relationship	Solutions
Language barriers	Trust: Linguistic minorities report worse care than is provided to linguistic majorities <sup>35</sup> ; physicians are less likely to share information <sup>36</sup>	Trust: Print educational handouts in the patient's language
Cultural barriers	Trust: Patients may not trust Western medicine  Knowledge: Doctors may not understand the patient's health goals  Regard: Physicians may be judgmental about a patient who seeks complementary and alternative medical therapies	Knowledge: Use skilled/trained interpreters rather than family members or members of the treatment team who speak "a little" of the patient's language  Regard: Encourage a greater expression of empathy  Knowledge: Whenever possible, use interpreters who act as cultural ambassadors as well as language interpreters; use frameworks, such as Kleinman's 8 questions, <sup>10</sup> to elicit the patient's explanatory model; encourage physician participation in global health initiatives <sup>38</sup>  Regard: Acknowledge and incorporate traditional practices whenever possible <sup>39-41</sup>
Locus of control <sup>a</sup>	Knowledge: Patients may know themselves better than the doctor knows them and therefore know the best treatment	Knowledge and regard: A mutual participation model can be employed <sup>3</sup>

<sup>a</sup>Locus of control (ie, Who is ultimately making the decisions?).

11/28/2018

Impact of the Doctor-Patient Relationship

11/28/2018

Impact of the Doctor-Patient Relationship

**Table 5.**

Systemic Factors That Affect the Doctor-Patient Relationship and Suggested Solutions for an Impaired Relationship



11/28/2018

## Impact of the Doctor-Patient Relationship

Systemic Factors	Strains on Relationship	Solutions
Time constraints	<p>Trust: Doctors may not have or make the time to explain their reasoning to engender the patient's trust</p> <p>Knowledge: There is less time for the physician and the patient to get to know one another</p> <p>Regard: There is less time to establish rapport</p> <p>Loyalty: Patients are less likely to be loyal to a doctor if they have not developed positive regard</p>	<p>Trust, knowledge, regard, and loyalty: Develop strategies to increase workplace efficiency, leaving time for physicians to explain their reasoning, to know patients, and to establish rapport; by using prescreening forms and questionnaires while the patient is in the waiting room or by using simple technologies (eg, walkie-talkies to communicate with medical assistants and other support staff), more time can be devoted to patient care<sup>42</sup></p>
Space/room	<p>Knowledge: If the space is not private, physicians may be reluctant to ask certain questions, which limit their ability to know the patient; additionally, patients may be reluctant to confide in doctors if they do not feel the conversation is private</p> <p>Regard: Busy and uncomfortable clinics may make it harder for the doctor and patient to connect</p>	<p>Knowledge: Whenever possible, take the patient into a private room to ask questions</p>
High patient-provider ratio <sup>a</sup>	<p>Knowledge: Patients may feel like they are objects being discussed, rather than as equals participating in their own care; they may not feel as though they know all of the team members and what their roles are</p> <p>Regard: There may be too many people with whom to establish rapport</p>	<p>Trust: Explain each team member's role and how they contribute to the patient's care</p> <p>Knowledge and regard: Whenever possible, limit the number of physicians who round on a patient at one time; in teaching hospitals, where this is not always possible, team members should introduce themselves to the patient outside of rounds to</p>

[Open in a separate window](#)

<sup>a</sup>Refers specifically to teaching rounds, wherein a large team of providers visits a patient as a group.

Articles from The Primary Care Companion for CNS Disorders are provided here courtesy of **Physicians Postgraduate Press, Inc.**

# Exhibit 389

**Euthanasia and physician-assisted suicide**

Emanuel, Ezekiel J;Fairclough, Diane L;Daniels, Elisabeth R;Clarridge, Brian R  
*The Lancet*; Jun 29, 1996; 347, 9018; Health Research Premium Collection  
 pg. 1805

THE LANCET

**Department of Oncology****Euthanasia and physician-assisted suicide: attitudes and experiences of oncology patients, oncologists, and the public**

Ezekiel J Emanuel, Diane L Fairclough, Elisabeth R Daniels, Brian R Clarridge

**Summary**

**Background** Euthanasia and physician-assisted suicide are pressing public issues. We aimed to collect empirical data on these controversial interventions, particularly on the attitudes and experiences of oncology patients.

**Methods** We interviewed, by telephone with vignette-style questions, 155 oncology patients, 355 oncologists, and 193 members of the public to assess their attitudes and experiences in relation to euthanasia and physician-assisted suicide.

**Findings** About two thirds of oncology patients and the public found euthanasia and physician-assisted suicide acceptable for patients with unremitting pain. Oncology patients and the public found euthanasia and physician-assisted suicide least acceptable in vignettes involving "burden on the family" and "life viewed as meaningless". In no vignette—even for patients with unremitting pain—did a majority of oncologists find euthanasia or physician-assisted suicide ethically acceptable. Patients actually experiencing pain were more likely to find euthanasia or physician-assisted suicide unacceptable. More than a quarter of oncology patients had seriously thought about euthanasia or physician-assisted suicide and nearly 12% had seriously discussed these interventions with physicians or others. Patients with depression and psychological distress were significantly more likely to have seriously discussed euthanasia, hoarded drugs, or read *Final Exit*. More than half of oncologists had received requests for euthanasia or physician-assisted suicide. Nearly one in seven oncologists had carried out euthanasia or physician-assisted suicide.

**Interpretation** Euthanasia and physician-assisted suicide are important issues in the care of terminally ill patients and while oncology patients experiencing pain are unlikely to desire these interventions patients with depression are more likely to request assistance in committing suicide. Patients who request such an intervention should be evaluated and, where appropriate, treated for depression before euthanasia can be discussed seriously.

*Lancet* 1996; **347**: 1805–10

**Divisions of Cancer Epidemiology and Control** (E J Emanuel MD, E R Daniels BA) and **Biostatistics** (D L Fairclough DPH), **Dana-Farber Cancer Institute, Boston, Massachusetts, USA; and Center for Survey Research, University of Massachusetts, Boston, Massachusetts, USA** (B R Clarridge PhD)

**Correspondence to:** Dr Ezekiel J Emanuel, Center for Outcomes and Policy Research, Division of Cancer Epidemiology and Control, Dana-Farber Institute, Boston, MA 02115, USA

**Introduction**

Over the past few years, euthanasia and physician-assisted suicide have become prominent public issues in many industrialised countries.<sup>1</sup> Several countries or regions of countries have debated legislation on euthanasia or physician-assisted suicide. The state legislature of Oregon, USA, has voted to legalise physician-assisted suicide (although the measure has not yet been implemented), and in the Northern Territory, Australia, euthanasia and physician-assisted suicide have been legalised. In many countries there have been important legal cases involving euthanasia or physician-assisted suicide including the 1996 ruling by a Federal appellate court in the USA in which a constitutional right to euthanasia was recognised.<sup>2</sup> Courts in the Netherlands have also ruled on euthanasia cases involving both infants and patients with mental illness.

Interest in euthanasia and physician-assisted suicide has been stimulated by stories of suffering<sup>3-5</sup> and has also prompted empirical research on euthanasia. There have been surveys of physicians in Australia, the UK, Canada, the Netherlands, and other countries.<sup>6-8</sup> In the USA there have been more than ten published surveys of physicians.<sup>9-13</sup> For over 40 years public opinion about euthanasia has been tested by means of surveys in many countries.<sup>14</sup> There has even been a large survey of the family members of recently deceased patients about their attitudes toward euthanasia.<sup>15</sup> Unfortunately, most of these surveys asked general questions with limited detailed data on the personal circumstances surrounding the attitudes to euthanasia and physician-assisted suicide. By contrast, except for studies of patients' suicidal thoughts that do not cover euthanasia or physician-assisted suicide,<sup>16-18</sup> there have been few empirical studies of patients about euthanasia or physician-assisted suicide. Those that have been done involved no more than 100 patients and used questions with emotionally charged and ambiguous terms such as "mercy killing".<sup>19,20</sup> Finally, we know of no study in which the same set of questions are used to compare attitudes to and practices of euthanasia or physician-assisted suicide of patients, physicians, and the general public.

We interviewed oncology patients to provide empirical data of patients' attitudes and practices related to euthanasia and physician-assisted suicide. We interviewed oncologists and members of the general public to compare their responses with those of the oncology patients. We used the same basic set of questions for all the interviews. We selected oncology patients and oncologists for the following reasons. First, data from the Netherlands demonstrate that almost 70% of patients who use euthanasia have cancer.<sup>6</sup> Second, proposals to legalise euthanasia or physician-assisted suicide, such as in the

Oregon referendum, require patients to be terminally ill. Oncology patients therefore represent the largest group of patients for whom euthanasia and physician-assisted suicide would be an option and, in the USA, where oncology patients are generally cared for by specialists, oncologists are the most likely physicians to administer these interventions.

We sought answers to five questions about euthanasia and physician-assisted suicide.

- Under what conditions are euthanasia or physician-assisted suicide deemed acceptable?
- What would be the effect on the physician-patient relationship if euthanasia or physician-assisted suicide were part of discussions about terminal care?
- What are the experiences of patients, oncologists, and the general public in relation to euthanasia and physician-assisted suicide?
- What sociodemographic, health status, or other factors are associated with respondents' attitudes and experiences?
- What are the policy and research implications of these findings?

## Methods

The institutional review boards of the three participating hospitals and the University of Massachusetts, Boston, USA, approved the study, and no participant was paid to take part in the study. Eligibility criteria were age over 18 years, ability to understand and speak English, absence of hearing impairment, and mental competence.

Participants were divided into three cohorts:

**Cohort 1—oncology patients.** We obtained comprehensive lists of patients who had diagnoses of cancer on discharge notes or who had been seen at least twice in outpatient oncology clinics between Sept 15, 1993, and Dec, 15, 1993, from three teaching hospitals in the Boston area of Massachusetts, USA. After exclusion of those with basal or squamous cell skin cancers, 10% of the patients were randomly selected. We wrote to the responsible oncologist requesting an interview with the patient. When the oncologist agreed to contact, the patient was sent a letter containing a postage-paid opt-out card, explaining the purpose of the study. Patients who did not return the opt-out card were contacted for an interview. Of 393 patients randomly selected, 58 had died before they could be interviewed, 23 were not eligible (wrong diagnosis, mental incompetence, or non-English speaker), and the oncologist did not agree to contact for 59. Of the remaining 253 patients, 80 refused to participate (by returning the opt-out card or when contacted by telephone), ten could not be traced, three began but did not complete the interview, and five could not be interviewed before the study ended. We completed 155 interviews for a response rate of 61% of those we had permission to contact.

**Cohort 2—oncologists.** We selected all specialists in adult medical, gynaecological, and surgical oncology from Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont and randomly selected 10% of specialists in adult medical oncology from all 44 other states of the USA and the District of Columbia (listed in the 1993 American Society of Clinical Oncology Directory). Retired oncologists were not eligible. We selected New England oncologists because they come from the same states as the patients and members of the general public in the study; we selected national oncologists to assess the extent to which responses can be generalised. The oncologists were sent a letter explaining the study and containing a postage-paid opt-out card. Oncologists who did not return a card were contacted by telephone. Of the 498 oncologists selected, three had died, five were retired, and one was in hospital seriously ill. Of the 489 eligible oncologists, 115 refused to participate, seven could not be traced, and 12 could not be interviewed before the study ended. We completed 355 interviews for a response rate of 73%.

**Cohort 3—general public.** A random-digit-dial telephone sample

### Panel: Vignettes used in interviews

**Unrelenting pain** A patient develops metastatic cancer, which invades the bones and causes excruciating pain. Current levels of morphine, nerve blocks, and other treatments are failing to control the pain completely.

**Burden on family** A competent patient has terminal cancer with a few months to live. The patient has well-controlled pain and can continue self-care but is increasingly concerned about the burden that deterioration and death will place on his or her family. The patient has seen a psychiatrist and is not clinically depressed, but repeatedly asks for a life-ending injection.

**Functional debility** A competent patient has terminal cancer with a few months to live. The patient has no pain but is debilitated and cannot get out of bed or provide self-care. The patient has seen a psychiatrist and is not clinically depressed, but repeatedly asks for a life-ending injection.

**Views life as meaningless** A competent patient has terminal cancer with a few months to live. The patient has well-controlled pain and can continue self-care but finds life meaningless and purposeless. The patient has seen a psychiatrist and is not clinically depressed, but repeatedly asks for a life-ending injection because he sees no point in a drawn-out death process.

was taken for the geographic area covering eastern Massachusetts 617 and 508 area codes. 294 telephone numbers were confirmed to be residential. When we spoke to someone at the residential telephone number, a random adult was selected through the use of a Kish table and interviewed.<sup>20</sup> Of 294 contacts, ten were not eligible because of a language barrier and two were in hospital with serious illnesses. Of the remaining 282 people, 72 refused to participate, three interviews could not be used, and 14 could not be interviewed before the study ended. We completed 193 interviews for a response rate of 68%.

Survey development occurred in six steps: literature search, focus groups, instrument creation, cognitive pre-testing, behavioural pre-testing, and reliability assessment. Extensive pretesting was done to ensure that respondents understood the question as intended, that they did not confuse active euthanasia or physician-assisted suicide with normal medical procedures such as increasing morphine for pain control, and that the order of the questions did not affect responses.

Because the terms euthanasia and physician-assisted suicide can be ambiguous and emotionally charged, they were replaced throughout the survey by descriptive phrases. For instance, instead of using the term euthanasia, we asked participants, "Would it have been all right for the doctor, upon request from the patient, to administer intravenous drugs, such as potassium, intentionally to end the patient's life or to prescribe drugs so the patient could end his or her own life by overdose?" Attitudes toward euthanasia and physician-assisted suicide were elicited in four vignettes involving a patient with terminal cancer (panel). Each vignette is followed by a question of the above form.

The questions about pain were taken from the validated Wisconsin brief pain inventory for telephone administration;<sup>21</sup> questions related to health status, physical functioning, depression and psychological distress, and social functioning came from the validated Southwest Oncology Group's version of the SF-36 for oncology patients.<sup>21</sup> These scales, in particular the pain and depression and psychological distress scale, are known to be reliable and valid.<sup>22–25</sup> A score of less than 52 was used as the cut-off point for the depression and psychological distress scales because this score is well correlated with scores on other depression scales, clinical depression, use of mental health services, and distinction of clinically diagnosed depressed patients from non-depressed patients.<sup>24,25</sup> 50 questions used were identical for all three cohorts surveyed.

Trained interviewers from the Center for Survey Research, University of Massachusetts, Boston, Massachusetts, USA, conducted all telephone interviews between March and June,

	Oncologists (n=355)	Oncology patients (n=155)	General public (n=133)
Response rate	72.9%	61.2%*	86.4%
Mean (range) age in years (20-90)	48.3 (31-75)	52.5 (22-83)	54.5
Sex			
Male	309 (87.0%)	81 (52.3%)	78 (58.7%)
Female	46 (13.0%)	74 (47.7%)	55 (41.3%)
Ethnic origin			
White	310 (87.6%)	145 (94.2%)	159 (89.5%)
Black	1 (0.3%)	6 (3.9%)	11 (8.3%)
Other	42 (11.9%)	3 (1.9%)	18 (13.2%)
Religion			
Protestant	304 (85.6%)	29 (18.7%)	34 (25.6%)
Roman Catholic	78 (22.3%)	81 (52.3%)	95 (70.7%)
Jewish	1.8 (0.5%)	26 (16.8%)	11 (8.3%)
Other	52 (14.7%)	15 (9.6%)	8 (6.0%)
Education			
Primary school	..	9 (5.8%)	12 (9.0%)
Secondary school	..	39 (25.2%)	43 (32.3%)
Some college	..	33 (21.3%)	46 (34.6%)
College degree	..	37 (23.9%)	50 (37.6%)
Higher degree	355 (100%)	35 (22.6%)	25 (18.8%)
Income (x10 <sup>3</sup> US\$)			
<20	0	25 (16.1%)	27 (20.3%)
20-40	0	30 (19.4%)	42 (31.6%)
40-60	1 (0.3%)	32 (20.6%)	36 (27.1%)
60-100	17 (4.8%)	53 (34.2%)	60 (45.1%)
100-200	155 (43.7%)	0	0
>200	145 (40.8%)	0	0
Have advance care directive	134 (37.7%)	65 (42.0%)	83 (62.4%)

\*Response rate of patients for whom physicians agreed to contact.

Table 1: Characteristics of the cohorts

1994. Completed surveys contained no participant identifiers; all files with participants' names, telephone numbers, and survey identification numbers were destroyed after the study.

The proportion of "uncertain" or "don't know" responses ranged from 0 to 1.9% and averaged 0.5% over all questions and respondents. Respondents who did not answer a specific question or responded "uncertain" or "don't know" (range for questions 0 to 1.9%, average 0.5%) were excluded from analysis of that question. Differences in proportions between the cohorts were tested by  $\chi^2$  test of independence. Within-individual comparisons, such as their views on euthanasia and physician-assisted suicide for the same vignette, were tested with McNemar's statistic. Because most of the responses were ordered categorical scales, bivariate correlations were tested with Kendall's Tau-b. The New England and national oncologists were combined because their responses differed significantly for only two questions.

To identify independent correlates, exploratory analyses of factors associated with the likelihood of finding euthanasia or physician-assisted suicide acceptable in the vignettes were performed by a stepwise logistic regression procedure with a selection criterion of  $\alpha=0.05$ . All odds-ratios reported are from the stepwise multivariate logistic regression controlling for the significant variables in the model. We used a likelihood ratio test to report exact p values for associations of outcome with pain, physical functioning, and so on, that were not significant in the logistic regression analysis.

Answers based on Likert scales were treated as dichotomous responses. Variables examined for all cohorts included sex, age,

ethnic origin, marital status, religious affiliations, importance of religion, strength of religious beliefs, income, education, employment status, self-perceived health status, possession of an advance care directive, and participation in making end of life decisions for a family member or friend. For oncology patients and the general public, measures of depression, pain, and physical functioning were also included. For oncology patients, participation in a support group, self-perceived chance of cure of their cancer, and perceived disease status were also included as potential variables. For oncologists, having a hospital admission within the past year was also included as a potential variable.

**Results**

Table 1 summarises the characteristics of the 703 participants who completed interviews. Among the oncology patients, 28.4% reported their health as fair or poor; 45.8% had a recurrence or only partial response of their tumours to treatment; 38.7% felt they had only a fair or poor chance of a cure of their cancer; 32.2% had experienced significant pain within the previous 24 h; and 14.9% were depressed and psychologically distressed. The age, sex, hospital, and religion of eligible but non-participating patients, including those whose physicians refused participation, did not differ significantly from those of participants. Non-participating oncologists did not differ from participants in geographical distribution.

For all four vignettes, significantly smaller proportions of oncologists than of patients or the public found euthanasia or physician-assisted suicide acceptable (table 2). Participants in all cohorts found euthanasia and physician-assisted suicide most acceptable for the patient with terminal cancer and unremitting pain and least acceptable for the pain-free patient with terminal cancer who viewed life as meaningless. Oncologists consistently found physician-assisted suicide more acceptable than euthanasia ( $p \leq 0.001$ ). Oncology patients and the general public made no distinction between euthanasia and physician-assisted suicide. Similarly, oncologists would be significantly ( $p < 0.001$ ) less likely to vote to legalise euthanasia or physician-assisted suicide on a referendum (35.2% and 43.1%, respectively) than would oncology patients (69.8% and 59.4%) or the general public (66.1% and 56.8%). Patients and the public were more likely to vote for legalisation of euthanasia than of physician-assisted suicide. In the vignette on terminal cancer with unremitting physician pain, 97.4% of oncologists, 93.3% of oncology patients, and 91.8% of the general public stated that it would be acceptable for the physician to "increase the morphine dose to control the pain even if premature death is a likely consequence".

The multivariate logistic regression analysis revealed that patients in pain were significantly more likely to find euthanasia and physician-assisted suicide unacceptable in four vignettes, including the vignette of euthanasia for pain (odds ratio 2.3 [95% CI 1.0-5.3]). In half of the vignettes, patients over 50 years were significantly more

Vignette	Proportion of respondents agreeing with euthanasia			p*	Proportion of respondents agreeing with physician-assisted suicide			p*
	Oncologists (n=355)	Oncology patients (n=155)	General public (n=133)		Oncologists (n=355)	Oncology patients (n=155)	General public (n=133)	
Unremitting pain	22.7%	68.2%	85.8%	<0.0001	45.5%	70.0%	86.5%	<0.0001
Functional disability	15.5%	49.7%	49.2%	<0.0001	35.5%	48.0%	48.1%	<0.0001
Burden on family	5.0%	36.7%	36.2%	<0.0001	22.3%	38.3%	36.2%	<0.0001
View life as meaningless	5.7%	31.3%	29.3%	<0.0001	16.3%	32.6%	32.8%	<0.0001

\*p value represents oncologists' responses compared with pooled oncology patients and general public responses. There were no significant differences between the oncology patients and the general public in any vignette. †Difference between New England (19.5%) and national (13.5%) oncologists significant,  $p=0.017$ . ‡Difference between New England (19.6%) and national (2.3%) oncologists significant,  $p=0.005$ .

Table 2: Views about euthanasia and physician-assisted suicide

THE LANCET

	Oncology patients (n=155)	General public (n=293)	p
<b>Serious thoughts about requesting:</b>			
Euthanasia	16.7%	22.4%	0.22
Physician-assisted suicide	20.0%	25.1%	0.50
Either	27.3%	32.8%	0.34
<b>Serious discussions about euthanasia or physician-assisted suicide with physician or family</b>	11.8%	15.6%	0.42
<b>Hoarded drugs</b>	3.4%	0%	0.018
<b>Bought or read <i>Final Exit</i></b>	2.3%	0.5%	0.59

Table 3: Personal experiences related to euthanasia and physician-assisted suicide

likely to find euthanasia and physician-assisted suicide unacceptable. In all three cohorts, religious, particularly Roman Catholic, respondents were significantly more likely to find euthanasia and physician-assisted suicide unacceptable in the majority of vignettes. For example, among oncologists the odds ratio for finding physician-assisted suicide unacceptable for the vignette of functional debility were 2.0 (1.1–3.7) for Roman Catholic religion and 3.5 (2.2–5.6) for being religious; the corresponding odds ratios were 3.0 (1.4–6.3) and 2.8 (1.4–6.3) for oncology patients, and 1.5 (0.8–2.9) and 4.3 (2.1–8.8) for the general public. Members of the general public with depression and psychological distress were slightly, but not significantly, more likely to find euthanasia and physician-assisted suicide acceptable in the vignettes.

53.0% of oncologists but only 37.2% of patients and 44.4% of the general public thought that discussions between patients and physicians on “end-of-life care that included explicit mention of euthanasia or physician-assisted suicide” would reduce patients’ trust in the physician ( $p=0.003$ ). By contrast, 41.6% of patients, 32.8% of the general public, but only 15.6% of oncologists, thought such discussions would increase patients’ trust in the physician ( $p<0.001$ ). Patients with depression and psychological distress were significantly more likely to feel that discussions that included explicit mention of euthanasia or physician-assisted suicide would increase trust in their physician (6.9 [2.0–23.6]) whereas patients with pain believed such discussions would not increase trust (0.3 [0.1–0.8]).

19.0% of patients and 26.5% of the general public thought they would change physicians if their physician told them he or she “had provided euthanasia or assisted suicide” for other patients. More than 80% of oncologists thought a disclosure of this sort would cause patients to change to another physician. Patients with substantial pain and patients whose cancer had relapsed were significantly more likely to say they would change oncologists (12.3 [1.6–94.6] and 4.0 [1.3–12.1], respectively). The multivariate analysis also indicated that patients who were religious, Roman Catholic, or older than 50 years were also more likely to say they would change their physician (4.5 [1.4–13.7]; 4.9 [1.4–16.9]; and 4.1 [1.2–13.8],

	Euthanasia	Physician-assisted suicide	Euthanasia or physician-assisted suicide
Received requests for	37.6%	50.6%	57.2%
Personally performed	1.8%	13.6%	13.6%
Know another physician who performed	7.8%	19.8%	23.9%

Table 4: Personal experience of oncologists related to euthanasia and physician-assisted suicide

respectively). Patients who had an advance care directive were significantly less likely to change physicians (0.2 [0.04–0.5]). Similarly, members of the public who were very religious or older than 50 were significantly more likely to say they would change physicians (15.3 [6.5–36.1] and 3.4 [1.1–10.8], respectively).

More than a quarter of oncology patients had “had thoughts about asking [their] physician” to carry out euthanasia or assist them in committing suicide before the interview (table 3). Those who felt there was a poor chance that their cancer would be cured were significantly more likely to have thought about euthanasia, but not physician-assisted suicide, for themselves (3.3 [1.3–8.7]). Conversely, patients who were Roman Catholic, more religious, or over 50 were less likely to have considered requesting euthanasia or physician-assisted suicide (0.3 [0.1–0.7]; 0.1 [0.03–0.4]; and 0.2 [0.1–0.5], respectively).

1.9% of oncology patients had discussed euthanasia or physician-assisted suicide with their physician, 7.1% with their family, and 3.2% with a friend. Among the few patients who hoarded drugs (table 3), all thought their chances of having their cancer completely cured was poor or fair, all had an advance directive, all had significant support from their physician, but 40% had not discussed euthanasia or physician-assisted suicide with anyone. Oncology patients who were depressed or who had poor physical functioning were significantly more likely to have discussed euthanasia, to hoard drugs, or to have bought or read *Final Exit* (the Hemlock Society suicide manual) (4.6 [1.1–19.9]; 6.1 [1.5–24.0], respectively). Similarly, patients who were not religious and those with higher incomes were more likely to have taken these steps (18.2 [3.3–98.6]; 9.3 [2.6–33.6], respectively). Patients with significant pain were not more likely to discuss euthanasia or physician-assisted suicide, to hoard drugs, or to have bought or read *Final Exit* ( $p=0.85$ ).

Among the general public, more than 30% of participants had thought about euthanasia or taking an overdose “if they should be dying slowly from a terminal illness”. Whereas 15.6% of these participants had seriously discussed ending their lives with a physician, family member, or friend before the interview, none had actually hoarded any drugs for that purpose and only 0.5% had read *Final Exit*. Among the general public participants those who ranked their religious beliefs as important were less likely to have considered euthanasia or physician-assisted suicide for themselves (0.25 [0.1–0.5]) but those who had pain or poor physical functioning were not more likely to have discussed euthanasia or physician-assisted suicide or to have read *Final Exit*.

More than 50% of oncologists had received requests for euthanasia or physician-assisted suicide (table 4). In addition, 1.8% said they had carried out euthanasia and 13.5% said they had participated in physician-assisted suicide. Oncologists who found physician-assisted suicide acceptable were more likely to report that they had received requests for such assistance (3.7 [1.6–8.7]). Oncologists who were religious were significantly less likely to have assisted in suicides (0.5 [0.2–0.9]).

## Discussion

The results indicate that euthanasia and physician-assisted suicide are important issues in the care of terminally ill patients, that the avowed purpose and probable practice of euthanasia or physician-assisted suicide appear to conflict,

that certain safeguards seem appropriate, and that additional research on the experiences and interests of patients and physicians related to euthanasia and physician-assisted suicide is important.

Substantial numbers of oncologists and patients in the USA have considered, prepared for, or carried out euthanasia or physician-assisted suicide, even though these interventions were illegal. We found a higher proportion of oncology patients interested in euthanasia or physician-assisted suicide than in previous studies, probably because of our carefully worded questions that avoided ambiguous and emotionally charged terms.<sup>19,20</sup> More than half of American oncologists had been confronted with requests for euthanasia or physician-assisted suicide. Almost one in seven oncologists said they had participated in these interventions. The proportions of oncologists receiving requests for and carrying out euthanasia are similar to those in other studies that have used carefully worded questions,<sup>9,10</sup> but lower than those in studies using questions that combine euthanasia and the termination of life-sustaining treatments.<sup>1</sup> 12% of physicians in the UK report that they have carried out euthanasia or physician-assisted suicide, where these interventions remain illegal, whereas 54% of Dutch physicians have carried out euthanasia; this difference suggests a strong influence of legal sanctions and social permissibility on the practice of such interventions.<sup>6,7</sup>

This study extends previous studies of physicians<sup>9</sup> by showing that patients, the general public, and physicians, do not view all purposes and justifications for euthanasia and physician-assisted suicide as equally ethical. Euthanasia and physician-assisted suicide were viewed as most acceptable for patients with pain, whereas in vignettes involving "burden on the family" and "life viewed as meaningless", few participants found euthanasia or physician-assisted suicide ethically acceptable. Thus, only when patients want euthanasia or physician-assisted suicide and simultaneously have physical, rather than psychological, burdens that cannot be relieved by conventional medical interventions, are euthanasia or physician-assisted suicide acceptable.

One of our most striking findings is that patients who had seriously considered and prepared for euthanasia or physician-assisted suicide were significantly more likely to be depressed. Depressed patients were more likely than non-depressed patients to find that discussions of euthanasia or physician-assisted suicide increased trust in their physician. This finding does not imply that every patient who wants euthanasia or physician-assisted suicide is depressed. Nevertheless, these data, combined with studies on suicidal thoughts among patients with cancer and refusal of life-sustaining treatment among AIDS patients,<sup>16-18,26</sup> imply that interest in and actions relating to ending of life among patients with life-threatening illnesses are frequently associated with depression and psychological distress.

Patients experiencing pain were not inclined to euthanasia or physician-assisted suicide. This finding is consistent with data from the Netherlands demonstrating that pain was the only reason for euthanasia in just 10% of cases and a contributing factor in fewer than 50% of cases.<sup>5</sup> It is also consistent with data from American physicians who had carried out euthanasia.<sup>12</sup> The lack of interest in euthanasia or physician-assisted suicide among patients with pain may contribute to oncologists' opposition to these interventions and their sense that

discussions of them will reduce patient trust. The results suggest that having pain does not predispose a person to desire or take actions to end his or her life. Patient with pain do not seem to view euthanasia or physician-assisted suicide as the appropriate response to poor pain management. Indeed, oncology patients in pain may be suspicious that if euthanasia or physician-assisted suicide are legalised, the medical care system may not focus sufficient resources on provision of pain relief and palliative care.

These data indicate a conflict between attitudes and probable practices related to euthanasia and physician-assisted suicide. The interventions were approved of for terminally ill patients with unremitting pain, but these are not the patients most likely to request such interventions. This discrepancy between attitudes and likely practices warrants a critical re-examination of the purpose and probable use of euthanasia or physician-assisted suicide and indicates the care needed in planning specific procedures and safeguards if euthanasia and physician-assisted suicide are to be legalised. An explicit assessment of physical burdens, such as unremitting pain, experienced by the patient that would be relieved by euthanasia or physician-assisted suicide would be essential. This is a requirement of the Northern Territory law in Australia, but not of the Oregon assisted-suicide law in the USA. Our results suggest that patients who request euthanasia or physician-assisted suicide should be carefully evaluated and, if need be, treated for depression. There is some concern that with legislation of euthanasia or physician-assisted suicide non-psychiatric physicians, who generally have a poor ability to detect and treat depression may allow life-ending interventions when treatment of depression may be more appropriate.

As demonstrated in most previous studies of physicians,<sup>1,7,8,13</sup> being Roman Catholic and being religious were strongly and independently associated with all aspects of the patients', oncologists', and the public's attitudes to euthanasia and physician-assisted suicide. As the debate about euthanasia and physician-assisted suicide progresses it may be important to take steps to minimise the discord and prevent the type of violence that has arisen with abortion, particularly in the USA.

This study also highlights areas requiring further research. The disparity between the 50% of American oncologists who receive requests and the 13% who said they had assisted in euthanasia suggests that, as in the Netherlands, many patients who express a desire for euthanasia do not receive it.<sup>6,12</sup> Whether these requests are serious and valid, how these patients are managed, and whether the patients ultimately are satisfied with their care, need further investigation. Additional research to confirm the association between depression and interest in euthanasia and physician-assisted suicide is essential. Also, following up depressed patients to find out whether treatment of depression changes their interest in euthanasia or physician-assisted suicide is necessary. Confirmation of the lack of interest in euthanasia or physician-assisted suicide among patients with pain is also essential.

This study has several limitations. Whereas some patients and oncologists acknowledge that they have discussed or engaged in activities related to euthanasia, the results constitute only a lower bound of actual cases. However, at least for physicians, our results accord with some other studies.<sup>1,9,10,12</sup> Also, we did not find high non-

participation rates, high numbers of participants not answering the most sensitive questions, or participants terminating the survey prematurely, which are all well recognised indications that participants tried to avoid questions.<sup>30</sup>

Our cohorts are potentially unrepresentative. Although there were few significant differences between the New England and national samples of oncologists, the data may not apply to physicians who do not regularly care for terminally ill patients.<sup>11,12</sup> The general public cohort came from Massachusetts, a state with a high proportion of Roman Catholics and low proportion of ethnic minorities; also a high proportion of participants were women. There may be bias since some data suggest a higher proportion of ethnic minorities and women oppose euthanasia than other sections of the community. However, the findings of a previous national survey of the general public on euthanasia<sup>14</sup> are consistent with our survey. In our study sex was not significantly associated with attitudes or actions relating to euthanasia or physician-assisted suicide.

Another limitation may be seen in the double-approval-consent process for patients. Physicians may have prevented us from interviewing patients who had more advanced disease or who were emotionally labile. However, there was no difference in age, sex, hospital, or religion between participants and non-participants. Additional studies are needed to examine whether these data can be extrapolated to other patients, including patients with other terminal illness.

Further research is needed to evaluate how requests for euthanasia or physician-assisted suicide are managed, to confirm the association between depression and interest in euthanasia, to find out whether treatment of depression reduces interest in euthanasia, and to confirm that patients with pain do not desire euthanasia or physician-assisted suicide.

We thank Margaret Battin, Francis Cook, Linda Emanuel, Karen Emmons, Lee Goldman, Joanne Lynn, Patricia Rieker, Julia Slutsman, and Jane Weeks for critical reviews of this project and manuscript.

This study was supported by the American Cancer Society (PBR-80). EE is a recipient of an American Cancer Society Career Development Award.

#### References

- Emanuel EJ. Euthanasia: historical, ethical, and empiric perspectives. *Arch Intern Med* 1994; **154**: 1890-901.
- Compassion in Dying v State of Washington (No 94-35534, March 6, 1996).
- Quill TE. Death and dignity: making choices and taking control. New York: W W Norton, 1993.
- Brody H. Assisted suicide: a challenge for family physicians. *J Fam Pract* 1993; **37**: 123-25.
- Eddy DM. A conversation with my mother. *JAMA* 1994; **272**: 179-81.
- van der Maas PJ, van Delden JFM, Pijnenborg L, Looman CWN. Euthanasia and other medical decisions concerning the end of life. *Lancet* 1991; **338**: 669-74.
- Ward BJ, Tate PA. Attitudes among NHS doctors to requests for euthanasia. *BMJ* 1994; **308**: 1332-34.
- Kinsella TD, Verhoef MJ. Alberta euthanasia survey: 1 physicians' opinions about the mortality and legalization of active euthanasia. *Can Med Assoc J* 1993; **148**: 1921-33.
- Fried TR, Stein MD, O'Sullivan PS, Brock DW, Novack DH. The limits of patient autonomy: physician attitudes and practices regarding life-sustaining treatments and euthanasia. *Arch Intern Med* 1993; **153**: 722-28.
- Shapiro RS, Derse AR, Gottlieb M, Schiedermayer D, Olson M. Willingness to perform euthanasia: a survey of physician attitudes. *Arch Intern Med* 1994; **154**: 575-84.
- Cohen JS, Fihn SD, Boyko EJ, Jonsen AR, Wood RW. Attitudes toward assisted suicide and euthanasia among physicians in Washington state. *N Engl J Med* 1994; **331**: 89-94.
- Back AL, Wallace JI, Starks HE, Pearlman RA. Physician-assisted suicide and euthanasia in Washington state. *JAMA* 1996; **275**: 919-25.
- Lee MA, Nelson HD, Tilden VP, Ganzini L, Schmidt TA, Tolle SW. Legalizing assisted suicide: view of physicians in Oregon. *N Engl J Med* 1996; **334**: 310-15.
- Blendon RJ, Szalay US, Knox RA. Should physicians aid their patients in dying? The public perspective. *JAMA* 1992; **267**: 2658-62.
- Jacobson JA, Kasworm EM, Battin MP, Botkin JR, Francis LP, Green D. Decedents' reported preferences for physician-assisted death: a survey of informants listed on death certificates in Utah. *J Clin Ethics* 1995; **6**: 149-57.
- Allebeck P, Bolund C, Ringback G. Increased suicide rate in cancer patients: a cohort study based on the Swedish cancer register. *J Clin Epidemiol* 1989; **42**: 611-16.
- Winokur G, Tsuang M. The Iowa 500: suicide in mania, depression and schizophrenia. *Am J Psychiatry* 1975; **132**: 650-51.
- Barraclough B, Bunch J, Nelson B. A hundred cases of suicide: clinical aspects. *Br J Psychiatry* 1974; **125**: 355-73.
- Brown JH, Henteleff P, Barakat S. Is it normal for terminally ill patients to desire death? *Am J Psychiatry* 1986; **143**: 208-11.
- Owen C, Tennant C, Levi J, Jones M. Cancer patients' attitudes to final events in life: wish for death, attitudes to cessation of treatment, suicide, and euthanasia. *Psycho-oncology* 1994; **3**: 1-9.
- Kish L. A procedure for objective respondent selection with the household. *J Am Statist Assoc* 1949; **44**: 380-87.
- Cleeland CS. Measurement of pain by subjective report. In: Chapman CR, Losure J, eds. *Advances in pain research and therapy* vol 12. New York: Raven Press, 1989: 391-403.
- Moinpour CM, Feigl P, Metch B, Hayden KA, Meyskens FL, Crowley J. Quality of life end points in cancer clinical trials: review and recommendations. *J Natl Cancer Inst* 1989; **81**: 485-95.
- Berwick DM, Murphy JM, Goldman PA, et al. Performance of a five-item mental health screening test. *Med Care* 1991; **29**: 169-76.
- Ware JE. Chapter nine. In: *SF-36 health survey: manual and interpretation guide*. Boston: The Health Institute, 1993: 11-18.
- Fogel BS, Mor V. Depressed mood and care preferences in patients with AIDS. *Gen Hosp Psychiatry* 1993; **15**: 203-07.
- Schulberg HC, Saul M, McClelland M, Ganguli M, Christy W, Frank R. Assessing depression in primary medical and psychiatric practices. *Arch Gen Psychiatry* 1985; **42**: 1164-70.
- Eisenberg L. Treating depression and anxiety in primary care: closing the gap between knowledge and practice. *N Engl J Med* 1992; **326**: 1080-84.
- Badger LW, deGruy FV, Hartman J, et al. Patient presentation, interview content, and the detection of depression by primary care physicians. *Psychosom Med* 1994; **56**: 128-35.
- Wentland EJ. Survey responses and evaluation of their validity. New York: Academic Press, 1993.



# Exhibit 390

NBER WORKING PAPER SERIES

REPRODUCTIVE HEALTH CARE IN CATHOLIC-OWNED HOSPITALS

Elaine L. Hill  
David Slusky  
Donna Ginther

Working Paper 23768  
<http://www.nber.org/papers/w23768>

NATIONAL BUREAU OF ECONOMIC RESEARCH  
1050 Massachusetts Avenue  
Cambridge, MA 02138  
September 2017, Revised February 2016

Previously circulated as "Medically Necessary but Forbidden: Reproductive Health Care in Catholic-owned Hospitals." We are grateful to Nora Becker, Guy David, Bob Town, Marit Rehavi, Michael Richards, other conference participants at ASHEcon's and AHEC's 2016 conferences, iHEA's 2017 conference, seminar participants at Cornell University and the University of Kansas, Alina Denham, Lujia Zhang, Tarsha Vasu and anonymous reviewers for their help and comments. We thank Riley Hadden and Victor Hernandez Martinez for excellent research assistance. We also thank Jean Roth and the rest of the staff at NBER for assistance compiling our datasets. This paper uses data from Arizona, New Jersey, Florida, California, New York, and Washington, State Inpatient Databases (SID), Healthcare Cost and Utilization Project (HCUP), Agency for Healthcare Research and Quality. Funding for this project was in part provided by the Department of Public Health Sciences at University of Rochester and the Department of Economics at the University of Kansas. Declarations of interest: none. The views expressed herein are those of the authors and do not necessarily reflect the views of the National Bureau of Economic Research.

NBER working papers are circulated for discussion and comment purposes. They have not been peer-reviewed or been subject to the review by the NBER Board of Directors that accompanies official NBER publications.

© 2017 by Elaine L. Hill, David Slusky, and Donna Ginther. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

Reproductive Health Care in Catholic-Owned Hospitals  
Elaine L. Hill, David Slusky, and Donna Ginther  
NBER Working Paper No. 23768  
September 2017, Revised February 2016  
JEL No. J13,L31,Z12

**ABSTRACT**

Mergers that affiliate a hospital with a Catholic owner, network, or system reduce the set of possible reproductive medical procedures since Catholic hospitals have strict prohibitions on contraception. Using changes in ownership of hospitals, we find that Catholic hospitals reduce the per bed rates of tubal ligations by 31%, whereas there is no significant change in related permitted procedures such as Caesarian sections. However, across a variety of measures, we find minimal overall welfare reductions. Still, fewer tubal ligations increase the risk of unintended pregnancies across the United States, imposing a potentially substantial cost for less reliable contraception on women and their partners.

Elaine L. Hill  
University of Rochester School of Medicine  
Department of Public Health Sciences  
265 Crittenden Blvd  
Box 420644  
Rochester, NY 14642  
elaine\_hill@urmc.rochester.edu

Donna Ginther  
Department of Economics  
University of Kansas  
333 Snow Hall  
1460 Jayhawk Boulevard  
Lawrence, KS 66045  
and NBER  
dginther@ku.edu

David Slusky  
Department of Economics  
University of Kansas  
335 Snow Hall  
1460 Jayhawk Boulevard  
Lawrence, KS 66045  
david.slusky@ku.edu

## 1. Introduction

The Affordable Care Act (ACA) has resulted in significant changes in hospital ownership, in part from mergers and acquisitions. The figures are notable: 105 merger deals were reported in 2012 alone, an increase from an average of 50 to 60 annually in the pre-ACA and pre-recession years of 2005–2007 (Dafny 2014). Catholic hospital systems have actively participated in this merger frenzy, with 120 mergers between Catholic and non-Catholic systems between 2001 and 2016 (Uttley and Khaikin 2016), a fifteen-year growth rate of 22%. Four out of the top ten largest healthcare systems (and four of the top five non-profit systems) were Catholic affiliated, and Catholic hospitals accounted for 14.5 percent of all acute care hospitals and one in six acute care hospital beds in 2016 (Uttley and Khaikin 2016).

Ownership changes that affiliate a hospital with a Catholic owner, network, or system, are consequential because they reduce the set of possible contraceptive medical procedures. Specifically, the U.S. Conference of Catholic Bishops' (USCCB) Ethical and Religious Directives for Catholic Health Care Services forbid sterilization procedures, contraceptives, in vitro fertilization and abortion at Catholic health care facilities (USCCB 2009). As a result, a rise in mergers between Catholic and secular hospitals and health systems over the past decade has drawn increased attention to the directives' impact on access to reproductive health care services at such facilities. For example, in October of 2015, the American Civil Liberties Union sued Trinity Health (the second largest Catholic Health System that owns 86 hospitals in 21 states) for not performing abortions when medically necessary. The lay press, medical and legal journals have featured discussions about the impact of these ownership changes on patient care, particularly with regard to reproductive health, such as abortions and sterilizations, and have drawn attention to the \$45 billion in federal funding these hospital systems receive each year (Catholics for Choice 2005, National Women's Law Center 2011, Abelson 2012, Mencimer 2013, Martin 2013, Lee and Propublica 2016). This is in addition to other new restrictions on reproductive health care services that proliferated over the past decade (Packham 2017, Quast et al. 2017, Fischer, Royer, and

White 2017, Cunningham et al. 2017, Bailey and Lindo 2018, Lu and Slusky 2016). Existing research on the potential effect of Catholic ownership on patient care has relied on qualitative interviews of patients and doctors (Rubin et al. 2006, Stulberg et al. 2014). This paper examines the effect of Catholic affiliation on reproductive health procedures and finds significant reductions in tubal ligations.

To illuminate the potential consequences of Catholic owned hospitals, we examine the effect of changes in ownership from secular to Catholic (and vice versa) on reproductive health procedures such as tubal ligation, abortion, vasectomy, hysterectomy, and dilation and curettage (D&C)<sup>1</sup> that are likely to be affected by Catholic ownership and banned under the USCCB Ethical and Religious Directives.<sup>2</sup> In particular, we investigate the following question: How does Catholic ownership affect the rates of reproductive procedures restricted under the USCCB Directives? We hypothesize that changes to Catholic ownership result in a reduction in the rates of these procedures. We also investigate how Catholic affiliation of a hospital affects the fertility rate, women's hospital choice, and complications after miscarriage.

To test our hypothesis, we use the universe of hospitals in six states and compile publicly available data on Catholic hospital mergers to identify hospitals that do not change location but change ownership. We use within-hospital and across-patient variation to control for potential differences in patient population across different types of hospitals, including a hospital fixed effect. In particular, our study exploits changes in affiliation only (such changes are in name, administration, and affiliation) with the hospital location unchanged. We use longitudinal data on hospital procedures to identify the causal effect of Catholic ownership on reproductive health procedures, with a particular focus on tubal ligations.

---

<sup>1</sup> Dilation and curettage, used to remove uterine tissue for a variety of reasons. Since the technique used can be similar to that of an abortion, we only code D&C = 1 if the woman had a D&C but did not have an abortion on that discharge.

<sup>2</sup> Despite abortion and vasectomy being primarily performed in an outpatient setting, we measure impacts on inpatient procedures as those are available in our data and find suggestive evidence that the religious directives are also reducing access to these procedures.

We find evidence that Catholic ownership of hospitals decreases the rate of tubal ligations by 30 percent. We find suggestive evidence that vasectomies and abortions also decrease, but are rarely performed in an inpatient setting, so these estimates are less precise. We do not find evidence that changes in Catholic ownership are related to changes in the number of births, Caesarian sections, or miscarriages.

Anecdotal reports have suggested that Catholic hospitals are putting women in danger due to the restrictions on miscarriage management. Contrary to these reports, we find some evidence that Catholic ownership is in fact associated with a reduction in miscarriages that involve a complication, suggesting that anecdotal accounts may not be indicative of a widespread pattern. Hysterectomies are another form of female sterilization restricted by the USCCB Ethical and Religious Directives. We find a reduction in hysterectomies among women of childbearing age, which is less precisely estimated but consistent with the findings for tubal ligations. Hysterectomies are also performed in response to hemorrhage, so a reduction may also be indicative of improved quality. That said, we do not find any evidence of a decrease in severe maternal morbidity with Catholic ownership that would support an overall conclusion of improved quality.

Current literature suggests that this growth in mergers and affiliation changes are part of a broader trend in hospital consolidation likely driven by multiple factors such as economies of scale, financial distress, desires to expand market power, and risk management strategies in response to health care reform (Dafny 2014, Uttley and Khaikin 2016, Neprash et al. 2017). We test our identifying assumption by estimating how changes in ownership affect the composition of reproductive patients, hospital characteristics, and controlling for changes in unemployment in the county where the hospital is located. We find some suggestive evidence that after a switch to Catholic ownership, hospitals may have a slight increase in the share of reproductive patients that are Black and a slight increase in the number of beds, though neither effect is precisely estimated. When we control for these characteristics in our main

specification, the results are consistent. Our results are also robust to the inclusion of the county unemployment rate.

There may be national trends in use of these reproductive procedures that are concurrent with our study period. Data from the National Survey of Family Growth (NSFG) from 1980 to 2014 reflect a fairly steady rate of female sterilization (i.e., tubal ligation) of 27.5 percent for all women and 37.8 percent for married women nationally (Bailey and Lindo 2018). This rate has started to decline somewhat after 2010 with the introduction of Long Acting Reversible Contraceptives (LARC) such as IUDs. These data suggest that in the latter part of our study period, there could be secular trends reducing the use of tubal ligation. According to these national survey data, the most prevalent and persistent use of tubal ligation is among women aged 35-44; thus, we also stratify our estimates by age. Our results are robust to inclusion of state-year fixed effects that should at least partially account for changes in state-level insurance coverage for reproductive procedures that might also influence the population seeking tubal ligation.

Our paper contributes to a well-established literature that investigates the impact of access to contraception on fertility and women's health outcomes. This literature has focused on both increases and decreases in access to family planning programs, abortion clinics, and availability of emergency contraception. The conceptual framework used to understand how access to these programs affects fertility rates in particular is ambiguous. Bailey and Lindo (2018), in their recent review, argue that empirical evidence is critical to understand the direction of the effect. For example, decreases in access to abortion or sterilization may induce women to substitute towards other forms of contraception (e.g., the pill or LARC). Access to emergency contraception may increase risky sex and sexually transmitted infections (STIs) but reduce abortion rates and have little effect on overall fertility (Mulligan 2016, Cintina and Johansen 2015). Our findings suggest that limiting access to sterilization and abortion through Catholic ownership does not affect the general fertility rate (GFR) in the hospital referral region

of hospitals that switch to or from Catholic. When controlling for an index of policies that promote access to emergency contraception, we do not find that those policies have a statistically significant effect on our outcomes of interest.

Our paper also contributes to a limited literature regarding patient loyalty and hospital choice. Lay media suggests that women may not know that their hospital is Catholic or that there are restrictions on these reproductive services.<sup>3</sup> They may learn, however, after giving birth and may choose to switch to a different hospital for the following birth. Irace (2018) exploits hospital closures due to Hurricane Sandy and finds that patients are persistent in their hospital choice across multiple conditions. Chartock, Garmon and Schutz (2018) find that surprise out-of-network bills on the first birth increases the odds of switching hospitals for the second birth by 13 percent. Raval and Rosenbaum (forthcoming) analyze patients' choices of hospital for childbirth in Florida and find that 70 percent of women return to the same hospital in a following birth and that without switching costs, their choice model would predict a 40 percent persistence in hospital choice, and that network restrictions like those in the ACA result in unambiguous welfare losses. This is fairly consistent with our finding that 30 percent of women switch hospitals between births. We find, however, that women are 50 percent more likely to switch to a non-Catholic hospital when their first hospital becomes Catholic between deliveries, which is likely to also result in welfare losses of the magnitude measured in their paper. We acknowledge that this switching is a plausible mechanism behind our results, but we do not believe it is the driving one.

We make some effort to estimate the welfare effect of these hospital changes by looking at racial and payer subgroups and high and low competitive hospital referral regions (HRR) to try to understand whether there are any disparities that come from these ownership changes. We find that Hispanic mothers

---

<sup>3</sup> <https://fivethirtyeight.com/features/how-insurers-can-send-patients-to-religious-hospitals-that-restrict-reproductive-care/>  
<https://fivethirtyeight.com/features/how-catholic-bishops-are-shaping-health-care-in-rural-america/>  
<https://www.nytimes.com/2018/08/10/health/catholic-hospitals-procedures.html>



are disproportionately affected by restrictions to tubal ligation. We also find some suggestive evidence that the reductions in tubal ligations are larger in HRRs that have less competition and fewer alternative hospitals for women to seek care. We perform a back-of-the-envelope calculation and estimate that these results translate to 10,000 fewer tubal ligations per year. This is particularly concerning for populations that use tubal ligations to prevent unwanted pregnancies.

Multiple robustness (such as sample selection, balanced panel, alternative outcome measures) and falsification checks (such as differences in miscarriages, Caesarian sections or births), including count and Poisson fixed effects models, did not show strong evidence that our results are sensitive to these alternative specifications or outcome measures. Due to the small number of switching hospitals that we identify our results off of, we use a number of clustering methods including bootstrapping our standard errors, and these results provide additional confidence in our conclusions. We further address potential concerns about bias in generalized difference-in-differences by implementing a method developed by Goodman-Bacon (2018) and show that our common trends assumption holds using a new balance test and that our results are robust to using the weights proposed.

Our paper interacts with the literature on hospital regulation by showing the consequences of the lack of regulation, where hospitals are permitted to deny procedures based on religious grounds. This is in contrast to the majority of the existing literature (e.g., Salkever 2000, Cook et al. 2010, Dranove 2011, Chung et al. 2016, Clemens and Ippolito 2017) which focuses on overt regulations (e.g., pricing, staffing, payments, investments, and competitiveness), rather than services offered. In our case, a recent accommodation by the Supreme Court that allows religious non-profit and for-profit entities to opt out of providing contraceptives under the Religious Freedom Restoration Act (RFRA) (e.g., *Burwell v. Hobby Lobby*) suggests that there may be limited policy responses to curb these restrictions, and so it is important to evaluate the impact of these restrictions on fertility and ascertain which women are most likely to be affected. It is equally important to measure the impacts in order to weigh the trade-offs

between a woman's autonomy over her health and body versus an organization's view of being complicit in another person's access to religiously forbidden activities. We cannot weigh these without measures of the costs and benefits.

Lack of access to reproductive procedures studied in this paper can have reverberations to women's long-term economic outcomes as well as the outcomes of their children. Bailey et al. (2016) show that children born after family planning programs were expanded from 1965 to 1973 were significantly less likely to grow up in poverty and Bailey et al. (2012) found that thirty percent of the convergence of the gender wage gap in the 1990s was attributed to increased access to contraception. Research has shown that unintended and mistimed pregnancies are associated with substantially higher odds of low birth weight babies (Hall et al. 2017), less prenatal care and lower breastfeeding rates (Kost and Lindberg 2015), maternal behaviors that adversely affect child health (Joyce et al. 2000), and a higher risk of child abuse and neglect (Guterman 2015).

## **2. Hospital Ownership and Reproductive Outcomes**

The Patient Protection and Affordable Care Act (ACA) promotes Accountable Care Organizations (ACOs) and the bundling of payments across providers for an episode of care ("bundled payments"). These features of the ACA encourage consolidation between hospitals and physician practices, and this consolidation has substantially increased since the ACA was passed. The last hospital-merger wave in the 1990s led to substantial price increases without improvements in care quality (Gaynor and Town 2012, Encinosa and Bernard 2005, Dafny 2009). Economic research using data from 1990-2003 has shown that hospital mergers increase both the market concentration and the price of hospital care (Dranove et al. 2008, Wu 2009). Mergers in concentrated markets lead to significant price increases (Dafny 2009, Tenn 2011, Town et al. 2006). Research on how consolidation may affect quality is more nuanced. For some procedures, hospital concentration reduces quality (Gaynor and Town 2012). Other studies suggest that competition improves quality where prices are market determined and under

an administered pricing system such as the U.S. Medicare Program (Gaynor and Town 2012, Cutler et al. 2010, Rogowski et al. 2007). However, the vast majority of studies assessing this relationship find no statistically significant relationship between for-profit or non-profit status and mortality (Eggleston et al. 2008). There is some evidence, though, that government-owned hospitals have a higher rate of adverse events than non-profit hospitals (Eggleston et al. 2008).

The United States has 617 Catholic hospitals, all consolidated into 60 integrated health networks and systems, ten of which are part of the twenty-five largest health care systems in the United States (Uttley and Khaikin 2016). From 2001 to 2016, the number of Catholic sponsored or affiliated hospitals increased by 22 percent, while all other types of non-profit hospitals declined in numbers. By 2016, 14.5 percent of all acute care hospitals were Catholic nationally; some states face higher percentages: in five states (Alaska, Iowa, Washington, Wisconsin and South Dakota) more than 40 percent of acute beds were Catholic owned or affiliated (Uttley and Khaikin 2016). Furthermore, 46 sole community hospitals are Catholic owned or affiliated.<sup>4</sup>

Catholic hospitals are prohibited from providing sterilization, abortion, and contraceptive services under the Ethical and Religious Directives for Catholic Health Care Services, which are issued by the U.S. Conference of Catholic Bishops and enforced by local bishops. In Appendix A, we include language from the directives limiting reproductive health care services. In recent years, concerns about health care at Catholic hospitals have caught the attention of the media and general public. For example, in Michigan, a woman filed suit against the United States Conference of Catholic Bishops because she did not experience appropriate care (i.e., induction or surgical removal of the fetus) when she

---

<sup>4</sup> A “sole community hospital” is a designation by Centers for Medicare and Medicaid Services (CMS) defined as a facility at least 35 miles away from other like hospitals or requires at least 45 minutes travel time away from the nearest similar hospital (Uttley and Khaikin 2016).

experienced a miscarriage at 18 weeks of pregnancy and was turned away from her local Catholic hospital (Eckholm 2013).

Despite increased public attention to women denied necessary reproductive health care at Catholic hospitals, research on the effects of religious reproductive health care restrictions remains limited.<sup>5</sup> Existing research has typically relied on surveys and interviews of physicians. For example, provider surveys have demonstrated a decreased likelihood of prescribing emergency contraception at religious facilities (Rubin et al. 2006, Harrison 2005). Among obstetricians and gynecologists (OB-GYNs) practicing in the United States, 22% identified their primary place of practice as religious, and 37% of these had experienced a conflict over religiously based policies (Stulberg et al. 2012). A national survey of primary care physicians found that 43% had worked in a religiously affiliated hospital or practice, and 19% of these had experienced a conflict over religious policies for patient care (Stulberg et al. 2010). In qualitative interviews, Catholic hospital OB-GYNs expressed frustrations about not being able to offer what they consider standard care, such as postpartum tubal ligation (Stulberg et al. 2014), ectopic pregnancy management (Foster et al. 2011), and timely miscarriage management (Freedman et al. 2008, Freedman and Stulberg 2013).

Additionally, Freedman et al. (2008) found in interviews with obstetrician–gynecologists that physicians sometimes intentionally disregarded protocol when they believed that patient safety was being compromised. So, despite these seemingly absolute directives, we might expect less than 100% reductions in prohibited procedures.

While these qualitative studies are suggestive, research is needed on the scope and prevalence of these patterns of care. This study takes the first step at assessing changes in practice patterns associated with Catholic hospital ownership.

### **3. Identifying the Causal Effect of Catholic Ownership**

---

<sup>5</sup> Economists have studied the impact of the U.S. Catholic clergy abuse scandals (Hungerman 2013, Bottan and Perez-Truglia 2015), but this research does not explicitly focus on health care outcomes.

We examine the effect of changes in ownership from secular to Catholic (and vice versa) on reproductive health procedures (e.g. abortion, tubal ligation, vasectomy, D&C) that are likely to be affected by Catholic ownership and banned under the USCCB Ethical and Religious Directives (USCCB 2009).

Our regressions take the following form:

$$ProceduresPerBed_{ht} = \alpha + Catholic_{ht} + \mu_h + \rho_t + \varepsilon_{ht}$$

where hospital  $h$  in year  $t$  has *ProceduresPerBed* rate of a particular procedure. This is calculated by taking the total number of discharges that have the code for that procedure and dividing it by the total number of beds in that hospital at time  $t$ , as one would expect larger hospitals to perform more procedures.<sup>6</sup> *Catholic* is a dummy for whether the hospital has Catholic affiliation during that particular year.  $\mu$  are hospital fixed effects and  $\rho$  are year fixed effects.<sup>7</sup> Finally, robust standard errors are clustered at the hospital level.

We identify the causal effect of Catholic ownership by assuming that consumers will not change behavior based solely on hospital ownership. This may be plausible because women may be dealing with an emergency and so go to the nearest hospital. As mentioned previously, women may live in an area which is only served by a Catholic hospital and thus have no choice because of an emergency or lack of

---

<sup>6</sup> See Appendix D, Table D1 which shows consistent results for using only general and OB-GYN beds as the denominator instead of all beds. Table D2 shows a count model that does not control for the number of beds. Table D3 shows a Fixed Effect Poisson, controlling for beds. We might also be concerned that number of beds is changing in response to Catholic ownership (e.g., see Table 2) and so we also have Table D4 that performs a count model with additional controls as well as time-invariant measures of beds from the first or last year of data available for each hospital. Our results are consistent across these different specifications. Appendix F also repeats all of our results using three different denominators, and finds directionally consistent results for each outcome, and similar consistent or inconsistent statistical significance as in the main specifications.

<sup>7</sup> The AHA data contain multiple time-varying hospital characteristics that are also correlated with hospital volume. We include them, therefore, in a count model in Appendix Table D4. The controls from the AHA data that are not missing for all the hospitals in the six states include: total payroll expenses, total expenses, total births, total admissions, FTE Physicians and Dentists, FTE Registered Nurses, FTE Licensed Practical Nurses, FTE Medical and Dental Residents, and Total Beds. We also run a specification with the following controls that are missing for half of our hospitals: Beds in the NICU, obstetrics service level, and obstetric beds. Our results are robust to their inclusion.

resources to travel. Furthermore, women may be unaware of the change in Catholic ownership and related policies and so therefore cannot condition on it.<sup>8</sup> Additionally, almost all of the hospitals that change ownership maintain the previous name, as opposed to changing to a name that is overtly Catholic. Finally, we provide direct evidence below that the demographic mix of patients at each hospital does not change significantly when the hospital changes its Catholic status. That said, this assumption may be overly restrictive and there may be demand-side effects.

Thus, we probe the validity of this assumption by examining whether women switch hospitals after their second birth. We do find some suggestive evidence that in non-emergent (or at least expected) situations such as childbirth, women are more likely to switch to a different non-Catholic hospital for their second delivery if the hospital they delivered at the first time became Catholic affiliated in the interim. We acknowledge that this is a plausible mechanism behind our results, but we do not believe it is the driving one.

Our regression is identified off hospitals that switch Catholic status.<sup>9</sup> Assuming common trends, we should be able to estimate the effect of Catholic affiliation on the procedures a hospital performs. However, this may or may not translate into effects at the individual level because of the possible endogeneity of hospital choice. Therefore, our results are informative about population level effects.

---

<sup>8</sup> According to a small qualitative study, women surveyed did not identify that a hospital with a Catholic name would be unlikely to provide contraception and abortion services (Guiahi et al. 2014).

<sup>9</sup> Figure C1 shows the approximate locations of hospitals in the six states in our sample, and categorizes them as “Always Catholic” (blue), “Never Catholic” (purple), “To Catholic,” “Catholic” (red), “From Catholic” (green), and “To and From Catholic” for the handful of hospitals that change status more than once in the sample (black). The size of each bubble is proportional to the average number of beds in the hospital. While there are more non-Catholic hospitals than Catholic ones, and while most Catholic ones have that status for the entire sample period, there are also many hospitals that switch status. We see evidence of more hospitals becoming Catholic in the states of New Jersey, California, New York and Washington, with a few in Arizona and Florida. These hospitals appear to be randomly distributed across the states in the sample, allaying concerns of overly correlated switches of Catholic hospitals in a particular market. In Appendix C, Figure C2, we include a map that shows just the hospitals that switch Catholic status.

Those effects, though, translate more to the individual for the areas where market concentration is higher and so the newly Catholic hospital has greater influence.<sup>10</sup>

#### 4. Data on Hospitals and Procedures

We use data from two primary sources for the years 1998-2013: the American Hospital Association Annual Survey (AHA)<sup>11</sup> and the state-level Healthcare Cost and Utilization Project (HCUP) inpatient databases<sup>12</sup> for six high-population states: Arizona, Florida, New Jersey, California, New York, and Washington.<sup>13</sup> These data contain the universe of utilization for all hospitals within these states and in some cases, have patient identifiers such that we can observe patients' utilization over time.<sup>14</sup> We augment this with newly collected public data on hospital ownership<sup>15</sup> and with procedure categories from the Clinical Classification Software (CCS).<sup>16</sup>

The AHA data contains information on the name, address, ownership, system, network, and size of each hospital in the United States. It also contains a variable as to whether the hospital is owned by a Catholic organization, but this variable is of questionable quality, with many hospitals appearing to switch in and out of Catholic ownership multiple times.

---

<sup>10</sup> See Table 7 below where we stratify by HHI of the hospital service area and find a stronger effect of Catholic ownership on our outcomes when HHI is higher.

<sup>11</sup> <http://www.aha.org/research/rc/stat-studies/data-and-directories.shtml>

<sup>12</sup> <https://www.hcup-us.ahrq.gov/sidoverview.jsp>

<sup>13</sup> Given the high cost of the data, we were not able to include additional states. Our results are robust to any five-state combination, as shown in Appendix D, Table D5.

<sup>14</sup> We have patient ID data for Arizona 2004-2007; Florida 2004-2013; California 2003-2009; New York 2003-2004 & 2007-2013, Washington 2003-2013. See [https://www.hcup-us.ahrq.gov/toolssoftware/revisit/UserGuide\\_SuppRevisitFilesCD.pdf](https://www.hcup-us.ahrq.gov/toolssoftware/revisit/UserGuide_SuppRevisitFilesCD.pdf)

<sup>15</sup> Per our agreement with AHA, we unfortunately can only share this new data with individuals or organizations that have a site license for the AHA data, as it reveals the names of the individual hospital in the AHA sample.

<sup>16</sup> <https://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp#download>

Hospital sales and acquisitions as well as network and system reorganizations are generally public events with accompanying press releases and media reports. We therefore supplement the AHA data by searching for press releases and articles about each hospital in each state for which we have HCUP data. This process produced new Catholic-affiliation variables, one for the hospital itself, one for the hospital's ownership, and one for the hospital's system. For the analysis below, we consider a hospital Catholic if any of these variables equals one.<sup>17</sup> This new variable has much less churn than the one in the AHA, and so we believe that it is a better representation of a hospital's affiliation. With this variable, across the states for which we have HCUP data, we observe approximately a third of all hospital mergers both to and from Catholic-affiliation that occurred nationally from 1998 until 2013 (Uttley and Khaikan 2016).

We merge these AHA and public data with inpatient discharge data from HCUP for the six states in our sample over the years 1998-2013. However, we do not have inpatient data for every state for every year.<sup>18</sup> This should not pose an econometric problem, since data availability is not related to Catholic affiliation. Furthermore, this lack of data is at the level of a state-year-file and not at the individual hospital level. We estimated models using a balanced panel and find consistent results.<sup>19</sup>

From the HCUP data, we keep hospital-years that have ICD-9 codes for at least one of the following fertility related procedures: tubal ligation, Caesarian section (C-section), vasectomy, abortion, and dilation and curettage (D&C), as these are the procedures most likely to be affected by Catholic directives.<sup>20</sup> We identify which ICD-9 codes correspond to these procedures using the CCS's list of

---

<sup>17</sup> See Appendix D, Table D6 which shows consistent results for only setting Catholic = 1 if the hospital itself is Catholic and not just the network or system.

<sup>18</sup> See Appendix C, Table C1 for a list of hospital-years.

<sup>19</sup> See Appendix D, Table D7, which shows consistent results when only using hospitals that appear in all of the years for which we have data for their state.

<sup>20</sup> Our results are robust to including any hospital-year with at least one discharge in HCUP. See Appendix D, Table D8.



procedure categories and codes.<sup>21</sup> We also use the CCS's lists of both procedure and diagnosis categories to identify complications, including hysterectomy, blood transfusion, maternal infections, and maternal hemorrhage. We define severe maternal morbidity (SMM) using the CDC definition.<sup>22</sup>

We link the AHA and HCUP data using the linkage files provided by HCUP which give the AHA ID to HCUP hospital ID mapping. Similarly, we define a "hospital" for the purposes of this analysis by its AHA ID. We also include HCUP's Hospital Market Structure information on competitiveness of a hospital service area<sup>23</sup> for one of the stratified investigations below.

## **5. Estimated Impact of Catholic Ownership on Reproductive Procedures**

Table 1 contains summary statistics. Panel A shows the average number of beds and the average procedure rates for hospital-years that are Catholic and those that are not. Catholic hospitals tend to be somewhat larger than non-Catholic hospitals. They also have statistically significant differences in almost every procedure and diagnosis.

---

<sup>21</sup> ICD-9 codes used in the paper are available upon request from the authors.

<sup>22</sup> <https://www.cdc.gov/reproductivehealth/maternalinfanthealth/smm/severe-morbidity-ICD.htm>

<sup>23</sup> <https://www.hcup-us.ahrq.gov/toolssoftware/hms/hms.jsp>

**Table 1: Summary statistics**

## Panel A: Means of Dependent Variables and Demographic Characteristics

	Not Catholic	Catholic	Difference	p-value
Beds	272.9	287.7	14.86	0.032**
<b>Procedures/Bed</b>				
Tubal Ligation	0.456	0.193	-0.263	<0.001***
C-section and Tubal Ligation	0.300	0.147	-0.153	<0.001***
Vasectomy	0.000547	0.000156	-0.000391	<0.001***
Abortion	0.00548	0.000538	-0.00494	0.069*
C-section	1.704	1.573	-0.0294	0.654
D&C	0.117	0.119	0.00216	0.679
<b>Diagnosis/Bed</b>				
Miscarriage/Stillbirth	0.0732	0.0695	-0.00374	0.191
Miscarriage/Stillbirth & Complication	0.0139	0.0141	0.000241	0.766
<b>Demographics</b>				
<i>Share of reproductive patients</i>				
Black	0.130	0.0987	-0.0315	<0.001***
White	0.472	0.462	-0.00982	0.287
Hispanic	0.201	0.202	0.000955	0.890
Medicaid	0.376	0.341	-0.0347	<0.001***
Private	0.491	0.532	0.0414	<0.001***
Self-Pay	0.0578	0.0472	-0.0106	0.001***
N (hospital-years)	8,608	1,459		
N (hospitals)		1,002		

## Panel B: Breakdown of Hospitals

Number of Hospitals	
Never Catholic	835
Always Catholic	130
To Catholic Only	17
From Catholic Only	13
To and From Catholic	7
<b>Total</b>	<b>1,002</b>

Panel C: Hospitals That Switch Once Before and After Switch

	To Catholic		From Catholic	
	Before	After	Before	After
Beds	218.2	249.1	385.7	263.4
<b>Procedures/Bed</b>				
Tubal Ligation	0.491	0.393	0.237	0.429
C-section and Tubal Ligation	0.299	0.268	0.123	0.290
Vasectomy	0.00133	0.000383	0.00000889	0.0000556
Abortion	0.00202	0.000545	0.00109	0.00175
C-section	1.723	1.965	1.171	1.552
D&C	0.121	0.183	0.181	0.0928
<b>Diagnosis/Bed</b>				
Miscarriage/Stillbirth	0.0752	0.0809	0.0895	0.0688
Miscarriage/Stillbirth & Complication	0.0138	0.0126	0.00937	0.0137
<b>Demographics</b>				
<i>Share of reproductive patients</i>				
Black	0.0663	0.137	0.107	0.0982
White	0.430	0.430	0.325	0.487
Hispanic	0.101	0.237	0.180	0.193
Medicaid	0.330	0.199	0.381	0.436
Private	0.535	0.664	0.485	0.456
Self Pay	0.0510	0.0679	0.0624	0.0248
N (hospital-years)	126	99	71	84
N (hospitals)		17		13

It is important to note that while tubal ligations and C-sections are generally inpatient procedures, vasectomies and abortions are generally outpatient procedures (Babigumira et al. 2015) and so minimally appear in our inpatient discharge data, explaining the low per-bed means. Despite this, we include them as these procedures are restricted by USCCB directives and are suggestive of the directives being somewhat binding.

We also include above the rate of discharges that have both a procedure code for a tubal ligation and for a C-section. This is because many women who have a C-section for their last child choose to have a tubal ligation at the same time, avoiding an additional abdominal surgery (Committee on Health Care for Underserved Women 2012). Sterilization is performed following 10% of all births and performing the procedure immediately postpartum is considered the most effective method (ACOG 2003, Kaunitz et al. 2008). If a woman delivers a baby in a Catholic hospital and wants to become

sterilized following the birth, she must now have an additional operation in a different hospital for a tubal ligation, increasing the risk of complications (Miller 2015).

Table 1, Panel A also includes the mean rates of a miscarriage or stillbirth, as well as a miscarriage or stillbirth with an accompanying complication.<sup>24</sup> There is anecdotal evidence that Catholic hospitals wait for the fetal heartbeat to cease during a miscarriage before performing a D&C (Freedman, Landy, and Steinauer 2008). Our hypothesis is therefore that Catholic affiliation may increase the rates of associated complications, but have no effect on the number of miscarriages and stillbirths.

Finally, Table 1, Panel A also contains means for patient demographic characteristics. These are calculated for patients that have at least one of the reproductive related diagnoses or procedures of interest for our analysis, namely tubal ligation, C-sections, vasectomies, abortions, D&C, miscarriages, and stillbirths. As with the procedure and diagnoses rates, there are statistically significant differences between Catholic and not-Catholic hospitals.<sup>25</sup>

Table 1, Panel B shows the breakdown of hospitals by whether they had an ownership change and the type of change. Our results below are identified based on the 37 hospitals that change status at least once during the time period that we study.<sup>26</sup>

Table 1, Panel C, shows the means for the variables in Panel A for the 30 hospitals that change Catholic affiliation exactly once. One can see the outlines of our main results here – that prohibited reproductive procedures decrease when hospitals become Catholic and increase when hospitals cease being Catholic.

Panel C also suggests changes in the demographic composition of patients. Therefore, before turning to our main regression results, we want to check formally whether patient demographic

---

<sup>24</sup> We define a complication for at least one of the following codes: maternal infection (diagnosis), maternal hemorrhage (diagnosis), hysterectomy (procedure), or transfusion (procedure).

<sup>25</sup> Including hospital fixed effects does not, however, change the statistical significance of our results. See Tables 3 and 4 (with hospital fixed effects) and Table D9 (without).

<sup>26</sup> Out of the 37 hospitals that change status, 13 become Catholic, 17 stop being Catholic, and 7 change status more than once.

characteristics change in a statistically significant way when hospital fixed effects are included. Table 2 has the results of estimating our main regression but with the share of patients that have a particular demographic characteristic as the outcome variable as opposed to the rate of procedures per bed. We also include the number of beds itself to see if hospitals are changing size when they change affiliation. Based on the results in Table 2 Panel A, we see minimal evidence of compositional changes in patients attending hospitals that switch to or from Catholic ownership. There may also be changes in hospital characteristics that could influence our outcomes of interest and we evaluate them in Panel B of Table 2. We find no evidence that hospital characteristics, such as total expenditure, births or number of doctors, change with Catholic ownership. This allows us to proceed to the main results with some confidence in our identification strategy.<sup>27</sup>

---

<sup>27</sup> This also suggests that despite the overall merger-driven Catholic consolidation in the U.S., our results are identified from hospitals becoming or ceasing to be Catholic affiliated without substantially changing in size.

**Table 2: Patient Demographics When a Hospital Changes Catholic Status**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<b>Panel A: Share of reproductive patients that are</b>							
	Black	White	Hispanic	Medicaid	Private	Self-Pay	Beds
Catholic	0.0173* (0.0104)	-0.0248 (0.0574)	-0.00451 (0.0269)	0.000960 (0.0347)	0.00287 (0.0343)	-0.007 (0.0152)	18.83 (14.70)
Dependent Var. mean	0.130	0.472	0.201	0.376	0.491	0.0578	272.9
R-squared <sup>28</sup>	0.008	0.020	0.048	0.102	0.105	0.005	0.007
<b>Panel B: Hospital characteristics</b>							
	Total Payroll	Total Expenditure	Total Births	Total Admissions	FTE Doctors	FTE RNs	FTE Medical Residents
Catholic	6.187e+06 (5.144e+06)	1.550e+07 (1.228e+07)	-49.76 (113.4)	454.3 (371.3)	4.227 (2.915)	-4.370 (16.46)	2.735 (3.934)
Dependent Var. Mean	8.210e+07	1.940e+08	1410	12495	32.78	387.0	43.23
R-squared	0.272	0.295	0.012	0.102	0.024	0.182	0.026
Observations	10,067	10,067	10,067	10,067	10,067	10,067	10,067
# of Hospitals	1,002	1,002	1,002	1,002	1,002	1,002	1,002

*Notes: All regressions include hospital and year fixed effects. These regressions include all hospitals in our sample. “Dependent Var. Mean” row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors clustered at hospital level in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$*

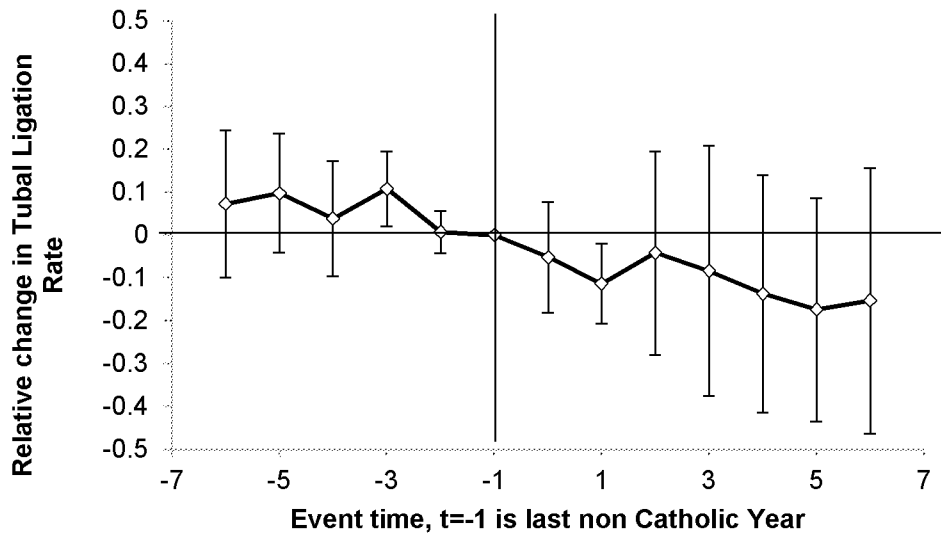
Panels A and B of Figure 1 show an event study for the per bed rate of tubal ligations for the 30 hospitals that change status once. Each point comes from a coefficient on a dummy variable for that value of event time. To be consistent with our regressions below, we also include hospital and year fixed effects and cluster standard errors at the hospital level.

Time zero is defined as the first year of Catholic affiliation (Panel A) or the last year of Catholic affiliation (Panel B). We exclude hospitals that have the same affiliation throughout the sample, as well as the ones that switch more than once, though both are included in the regressions below.

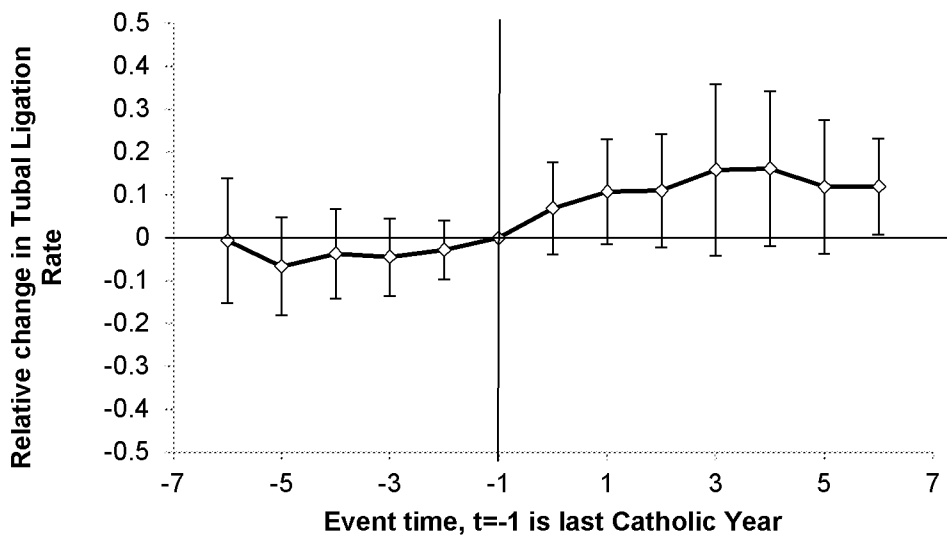
<sup>28</sup> Throughout the paper, we are reporting the “within” R-squared per the xtreg, fe model in Stata, which are “obtained by only fitting a mean deviated model where the effects of the groups (all of the dummy variables) are assumed to be fixed quantities.” See <https://www.stata.com/support/faqs/statistics/areg-versus-xtreg-fe/>.

**Figure 1: Event Study For Tubal Ligation Rate**

Panel A: Hospitals that Become Catholic



Panel B: Hospitals that Stop Being Catholic



Notes: From regressions which included a dummy for year in event time. The last year non-Catholic (Panel A) or non-Catholic (Panel B) year (-1) was omitted. Whiskers show 95% confidence interval. Both regressions include hospital and year fixed effects. Robust standard errors are clustered at the hospital level.

In Panel A, one can see a persistent level drop in the post period. In Panel B, there is a smaller but clear increase in the early part of the post period. This is in part because sales of religious hospitals to non-religious organizations can include stipulations to maintain religion-based restrictions on procedures.<sup>29</sup>

<sup>29</sup> <http://www.mergerwatch.org/sale-of-religious-hospitals/>

One may be concerned that there is an overall downward trend that is driving this result. Out of the 17 hospitals that become Catholic, two do have a multi-year downward trend in their per bed tubal ligation rate. Our results, though, are robust to omitting those two hospitals from the analysis.<sup>30</sup>

**Table 3: The Impact of Catholic Hospitals on Tubal Ligations**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Catholic	-0.139*** (0.0406)	-0.141*** (0.0402)	-0.151*** (0.0227)	-0.152*** (0.0508)	-0.117** (0.0496)	-0.121*** (0.0462)	-0.1000** (0.0502)
1 year lead for Catholic							-0.0294 (0.0403)
Dependent variable mean	0.456	0.456	0.394	0.457	0.456	0.465	0.465
Year Fixed Effects	N	Y	Y	Y	Y	Y	Y
No Change Hospitals To Catholic Hospitals	Y	Y	N	Y	Y	Y	Y
From Catholic Hospitals	Y	Y	Y	N	Y	Y	Y
R-squared	0.001	0.011	0.141	0.011	0.010	0.015	0.015
Observations	10,067	10,067	491	9,912	9,842	8,902	8,902
Number of Hospitals	1,002	1,002	37	989	985	943	943

*Notes: All regressions include hospital fixed effects. "Dependent variable mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors clustered at the hospital level in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$*

Table 3 contains results from our main regression for the tubal ligation rate for many different specifications. Column (1) is a parsimonious model for the pure within-hospital effect for all hospitals, with hospital fixed effects but without year fixed effects. Column (2) adds year fixed effects in case there are national trends which might affect the results, though here they have minimal impact on the coefficient of interest. We consider this to be our primary specification, as it includes all of the hospitals and a full set of time and hospital fixed effects.

Columns (3)-(5) exclude different groups of hospitals, including those that do not change, those that become Catholic, and those that stop being Catholic.<sup>31</sup> In Columns (6)-(7), we test our identification

<sup>30</sup> See Appendix D, Table D10. We also preform the balance test proposed by Goodman-Bacon (2018) and fail to reject the hypothesis that trends differ.

<sup>31</sup> One might be concerned that with only 37 hospital that change ownership that we would not have enough power to identify a statistically significant result. The results in the third columns of Tables 3-5 show that our results are actually more precise when focusing on only these hospitals, and so demonstrate that we have sufficient power. We have also bootstrapped our



by including a one-year lead for hospitals that switch to Catholic. Not all hospitals in our sample have data for this lead. Column (6) estimates our main result with this subsample and Column (7) includes the lead. Although this lead is not statistically significant, it may explain about 20% of our effect. We also estimate lagged models to better understand how effects vary over time (Appendix Table D11). We find that these effects are more immediate, which is consistent with our other suggestive evidence that patients may learn about the religious restriction over time and sort to other hospitals.

The coefficient is fairly consistent across specifications, with Catholic affiliation reducing the per bed tubal ligation rate by 31%, compared with non-Catholic hospitals.<sup>32</sup> Furthermore, when comparing the results in Columns (4) and (5) to the other coefficients in the table, it appears that the effect is being driven by hospitals that become Catholic, as only using hospitals that are no longer Catholic affiliated gives a smaller coefficient (though it is of the same direction).<sup>33</sup>

Table 4 Panel A repeats this analysis for the per bed rate of both a tubal ligation and C-section. As above, the effect is consistent across specifications and driven primarily by hospitals that become Catholic affiliated. Compared to the mean, becoming Catholic affiliated reduces the per bed rate by 24%. Hospitals that are no longer Catholic have no significant change in C-section and tubal ligation compared to hospitals that do not change ownership.

---

standard errors for the main result in Column (2) of Table 3 and the p-value becomes 0.004. For Column (3) that includes just switching hospitals, the bootstrapped p-value is 0.000.

<sup>32</sup> One might be concerned that we are simultaneously testing six different hypotheses in Tables 3-5. A conservative Bonferroni correction would be to set a p-value threshold of 0.17% (1/6) instead of 1%. The p-values for tubal ligation in Column (2) are less than 0.17% and so the result is still statistically significant even with this stringent definition.

<sup>33</sup> Again, this may be due to sales including stipulations to maintain religion-based restrictions on procedures. See <http://www.mergerwatch.org/sale-of-religious-hospitals/>

**Table 4: The Impact of Catholic Hospitals on Additional Outcomes**

	(1)	(2)	(3)	(4)	(5)
<b>Panel A: C-Section &amp; Tubal Ligation</b>					
Catholic	-0.0837*** (0.0271)	-0.0724*** (0.0267)	-0.0760*** (0.0152)	-0.0773** (0.0349)	-0.0505 (0.0341)
Dependent variable mean	0.300	0.300	0.250	0.300	0.300
R-squared	0.001	0.025	0.095	0.024	0.024
<b>Panel B: Vasectomy</b>					
Catholic	-0.00063** (0.000265)	-0.00073*** (0.000243)	-0.00077** (0.000304)	-0.0010*** (0.000387)	-0.00030 (0.000370)
Dependent variable mean	0.00055	0.00055	0.00066	0.00055	0.00054
R-squared	0.001	0.005	0.043	0.006	0.005
<b>Panel C: Abortion</b>					
Catholic	-0.000952** (0.000394)	-0.00168** (0.000659)	-0.00103*** (0.000388)	5.98e-05 (0.00614)	-0.00343 (0.00601)
Dependent variable mean	0.00548	0.00548	0.00197	0.00551	0.00553
R-squared	0.000	0.003	0.103	0.003	0.003
Year Fixed Effects	N	Y	Y	Y	Y
No Change Hospitals	Y	Y	N	Y	Y
To Catholic Hospitals	Y	Y	Y	Y	N
From Catholic Hospitals	Y	Y	Y	N	Y
Observations	10,067	10,067	491	9,912	9,842
Number of Hospitals	1,002	1,002	37	989	985

Notes: All regressions include hospital fixed effects. "Dependent variable mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors clustered at the hospital level in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table 4 Panel B repeats the analysis for vasectomies. Here the results are trickier, as the mean is extremely low due to the fact that most vasectomies are performed as an outpatient procedure. Still, the coefficient is statistically significant and driven by hospitals that become Catholic affiliated. At the mean, this coefficient represents a greater than 100% decrease, which is partly a function of the mean being so low. Still, the result is overall consistent with those above.

Table 4 Panel C repeats the analysis for the per bed abortion rate. As with vasectomies, abortion is usually an outpatient procedure and the average rate is very low. The coefficient in the full specification in Column (2) corresponds to 30% decrease at the mean, which is very close to the percentage drops from the results in Table 3. However, the results in Columns (4) and (5) are not

statistically significant, and so it is difficult to say which kind of hospital affiliation change is driving the results.

Table 5 Panel A and Panel B show estimates for the two procedures that we do not expect to be affected by Catholic affiliation: C-section rates by themselves and D&Cs. These tables show few statistically significant results, nor directionally consistent point estimates, which confirms our hypothesis that the number of these procedures performed should not be affected by Catholic ownership.<sup>34</sup>

**Table 5: The Impact of Catholic Hospitals on C-Section and D&C**

	(1)	(2)	(3)	(4)	(5)
<b>Panel A: C-Section</b>					
Catholic	-0.169 (0.112)	-0.0859 (0.111)	-0.124* (0.0704)	-0.234 (0.197)	0.0885 (0.193)
Dependent variable mean	1.704	1.704	1.394	1.706	1.704
R-squared	0.000	0.033	0.070	0.033	0.033
<b>Panel B: D&amp;C</b>					
Catholic	0.0205 (0.0177)	0.0106 (0.0154)	-0.000491 (0.0203)	-0.00232 (0.0227)	0.0142 (0.0216)
Dependent variable mean	0.117	0.117	0.0899	0.117	0.117
R-squared	0.000	0.033	0.070	0.033	0.033
Year FE	N	Y	Y	Y	Y
No Change Hospitals	Y	Y	N	Y	Y
To Catholic Hospitals	Y	Y	Y	Y	N
From Catholic Hospitals	Y	Y	Y	N	Y
Observations	10,067	10,067	491	9,912	9,842
Number of Hospitals	<u>1,002</u>	<u>1,002</u>	<u>37</u>	<u>989</u>	<u>985</u>

*Notes: All regressions include hospital fixed effects. "Dependent variable mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors clustered at the hospital level in parentheses \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$*

<sup>34</sup> We also investigate as an outcome variable the total number of reproductive discharges (i.e., ones that have reproductive procedure or diagnoses, including abortion, tubal ligation, vasectomy, D&C, C-section, hysterectomy, IUD, childbirth, miscarriage, stillbirth, maternal hemorrhage, or maternal infection). This is a larger sample of hospital-years (any with at least one of these procedures or diagnoses) than our primary one (at least one of tubal ligation, C-section, vasectomy, abortion, and D&C). We find that our tubal ligation results are consistent in this larger sample, but that across multiple specifications, including count (with and without adjusting for the number of beds) and per bed rates, we find no statistically significant effect of changing to or from Catholic on this new measure. See Appendix D, Table D12.

## 6. Welfare Implications of Reductions in Reproductive Procedures

The above results confirm that hospitals that switch to Catholic ownership seem to partially comply with USCCB Ethical and Religious Directives (USCCB 2009) and reduce certain reproductive health procedures. We now consider the broader welfare implications of these changes, parameterized with a handful of metrics that are possible with our data sets. We first start with stratifying our main results by dimensions that may indicate racial disparities or which women are disproportionately affected by these ownership changes.

We examine the racial and ethnic breakdown of the effect on the per bed rate of tubal ligations in Table 6. Column (1) has the per bed rate for discharges in any of the three groups.<sup>35</sup> The result in Column (1) is comparable to the results above. The results of Columns (2)-(5) are all of a comparable direction and magnitude, although the result for whites is no longer statistically significant. Using the mean for all hospitals, the percentage changes are also comparable – 22%, 37%, 31%, and 33%. Overall, this result is most precisely estimated when non-white women are pooled together in Column (5).

However, it is possible that individuals of different races and ethnicities are not being admitted to the same hospitals and therefore these point estimates have different relative meaning. The second row of dependent variable means is for hospitals that switch status when they are not Catholic. Here we see that the mean rate is much lower for Hispanics, which makes the relative drop much larger (68%). This relative effect is almost as large when pooling blacks and Hispanics (57%).<sup>36</sup>

---

<sup>35</sup> Notice that the mean of 0.372 (for all hospitals) is lower than the mean in Table 3 of 0.456 due to the exclusion of the “other” category from the numerator but the same denominator. Also notice that the means in Columns (2)-(4) sum to the mean in Column (1).

<sup>36</sup> While this is suggestive of a larger impact on Hispanics, we cannot reject the null hypothesis that these coefficients are statistically significantly different from each other.

**Table 6: Racial Breakdown of Effect on Tubal Ligation Rate**

	(1) White, Black, and Hispanic	(2) White	(3) Black	(4) Hispanic	(5) Black and Hispanic
Catholic	-0.101** (0.0429)	-0.0394 (0.0292)	-0.0168** (0.00741)	-0.0450** (0.0207)	-0.0618*** (0.0230)
Dependent variable mean:					
All non-Catholic hospitals	0.372	0.182	0.046	0.144	0.190
Switching Hospitals when non-Catholic	0.249	0.140	0.0426	0.0661	0.109
R-squared	0.003	0.002	0.008	0.006	0.004
Observations	10,067	10,067	10,067	10,067	10,067
Number of Hospitals	1,002	1,002	1,002	1,002	1,002

*Notes: All regressions include hospital and year fixed effects. Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$*

Table 7 stratifies by competitiveness of the hospital service area, using HCUP's 2006 data on the Herfindahl Hirschman Index (HHI). We do this to determine whether having fewer alternative hospitals in a service area explain our findings. While we cannot reject that the coefficients in Columns (2) and (3) are equal to each other, it is strongly suggestive that hospital service areas with more concentration in a handful of hospitals (i.e., more market power for the Catholic hospital), the greater the reduction on the tubal ligation rate from being Catholic affiliated. We discuss additional heterogeneity of our findings in Appendix G where we stratify by age, insurance type and type of Catholic affiliation.

**Table 7: Competitiveness of Hospital Service Area on Tubal Ligation Rate**

	(1) All	(2) Low HHI	(3) High HHI
Catholic	-0.173*** (0.0490)	-0.143** (0.0689)	-0.193*** (0.0676)
Dependent variable mean:	0.517	0.512	0.522
R-squared	0.023	0.022	0.041
Observations	7,146	3,471	3,675
Number of Hospitals	713	366	347

Notes: All regressions include hospital and year fixed effects. "Dependent variable mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Next, one can imagine a scenario where a woman who wants a tubal ligation cannot get one at the hospital where she is planning on delivering her final child. She therefore then has to recover and go to a different hospital for a tubal ligation.

In five out of the six states that we have data for (excluding New Jersey) and for the years 2003 and onward, we can identify patients across discharges and also order those discharges in time. Using these measures, we can identify women who had a C-section and then had a subsequent tubal ligation in another hospital without a subsequent C-section. Table 8 shows our main results from above for the subset of states and years with these patient linking variables, as well as the impact of Catholic affiliation on this new variable. First, we check the consistency in this subsample of our main results (for tubal ligation, C-section and tubal ligation, vasectomy, and abortion) from Table 4. The estimates in the Columns (1)-(2) are comparable to above, whereas those in (3) and (4) are directionally consistent but no longer statistically significant, perhaps due to the loss of power and variation from these exclusions. Column (5), however, shows both an exceptionally low mean rate of our new variable and also a marginally significant coefficient which has the opposite sign of our hypothesis.<sup>37</sup> We also looked at days from birth to tubal ligation in order to measure the intensive margin of a delay in tubal ligation and

<sup>37</sup> These results are consistent using a broader definition, namely a woman who has a child (by any means of delivery) but not tubal ligation, and then later a tubal ligation and no C-section.

show those results in Appendix D Table D13. We find some qualitative evidence that the time to tubal ligation for vaginal births increases, but time to tubal ligation for C-sections does not change.

**Table 8: The Impact of Catholic Hospitals on C-section & Tubal Ligation without C-Section Later Elsewhere**

	(1) Tubal Ligation	(2) C-section & Tubal Ligation	(3) Vasectomy	(4) Abortion	(5) C-section & Tubal Ligation Elsewhere
Catholic	-0.132*** (0.0326)	-0.0744*** (0.0222)	-0.000988 (0.000870)	-7.21e-05 (0.000804)	-0.000691* (0.000412)
Dependent variable mean	0.429	0.299	0.000456	0.00462	0.000554
R-squared	0.030	0.009	0.004	0.002	0.019
Observations	5,957	5,957	5,957	5,957	5,957
Number of Hospitals	856	856	856	856	856

*Notes: All regressions include hospital and year fixed effects. "Dependent variable mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$*

We now turn to another measure, which comes from the concern that miscarriage management may be compromised by religion-based restrictions (Freedman, Landy, and Steinauer 2008). There is anecdotal evidence of health care providers waiting for the fetal heartbeat to stop before performing a D&C, resulting in the mother losing so much blood that she experiences a substantial complication,<sup>38</sup> such as needing a transfusion to survive. Had she received the D&C earlier, the outcome for the fetus would have been the same (i.e., termination), but she could have been spared the complication. In particular, a transfusion also has an opportunity cost for everyone else who may need blood, not to mention the risks to her.<sup>39</sup>

<sup>38</sup> We define a complication as at least one of: maternal infection (diagnosis code), maternal hemorrhage (diagnosis code), hysterectomy (procedure code), or transfusion (procedure code).

<sup>39</sup> Freedman, Lori. "Washington State Case Study: A Difficult Miscarriage Made Worse by Hospital's Religious Restrictions on Care." Huffington Post, March 28, 2014. Available at [http://www.huffingtonpost.com/lori-freedman/washington-state-case-study\\_b\\_5037035.html](http://www.huffingtonpost.com/lori-freedman/washington-state-case-study_b_5037035.html)

Table 9 Panel A first checks whether there is an impact of Catholic affiliation on the rate of miscarriages or stillbirths themselves. As expected, we do not see any statistically significant coefficients here. Table 9 Panel B then repeats this for records that have both a diagnosis of miscarriage or stillbirth that also have at least one associated complication. Despite the anecdotal evidence mentioned above, we see no increase in the complication rate for women who are miscarrying or have a stillbirth. If anything, there is some evidence to the contrary – that complication rates decrease. Table 9 Panel C repeats this for records with severe maternal morbidity (SMM), which is a broader definition of complications from birth.<sup>40</sup> We again see weak evidence that SMM may be decreasing (a decrease would support an overall conclusion of improved quality). Lastly, Table 9 Panel D checks whether there is an impact of Catholic affiliation on the rate of hysterectomies for women under age 40. Hysterectomy for this age group may be indicated during a hemorrhage, if women have fibroids or endometriosis and is another form of sterilization. We again find some evidence that there is a reduction in rate of hysterectomies. While consistently negative, unlike the effect on tubal ligations, this effect is not precisely estimated across specifications, ranging from 4% to 33%.

---

<sup>40</sup> <https://www.cdc.gov/reproductivehealth/maternalinfanthealth/smm/severe-morbidity-ICD.htm>



**Table 9: The Impact of Catholic Hospitals on Miscarriage/Stillbirth, SMM and Hysterectomy**

	(1)	(2)	(3)	(4)	(5)
<b>Panel A: Miscarriage/Stillbirth</b>					
Catholic	-0.00200 (0.00652)	-0.00491 (0.00614)	-0.00683 (0.00473)	-0.0118 (0.0104)	0.000034 (0.0102)
Dependent variable mean	0.0732	0.0732	0.0592	0.0732	0.0732
R-squared	0.000	0.028	0.118	0.028	0.027
<b>Panel B: Miscarriage/Stillbirth with Complications</b>					
Catholic	-0.0040* (0.00207)	-0.0034* (0.00214)	-0.0044*** (0.00132)	-0.0033 (0.00373)	-0.0032 (0.00365)
Dependent variable mean	0.0139	0.0139	0.0112	0.0139	0.0139
R-squared	0.000	0.007	0.063	0.006	0.007
<b>Panel C: Severe Maternal Morbidity</b>					
Catholic	-0.0109* (0.00632)	-0.00498 (0.00583)	-0.00730* (0.00372)	-0.0119 (0.00855)	0.00477 (0.00836)
Dependent variable mean	0.0667	0.0667	0.0476	0.0667	0.0669
R-squared	0.000	0.091	0.156	0.091	0.092
<b>Panel D: Hysterectomy Under Age 40</b>					
Catholic	-0.0236 (0.0276)	-0.0340 (0.0216)	-0.0472*** (0.0116)	-0.0529*** (0.0179)	-0.00605 (0.0173)
Dependent variable mean	0.161	0.161	0.188	0.161	0.158
R-squared	0.000	0.095	0.296	0.094	0.089
No Change Hospitals	Y	Y	N	Y	Y
To Catholic Hospitals	Y	Y	Y	Y	N
From Catholic Hospitals	Y	Y	Y	N	Y
Observations	10,067	10,067	491	9,912	9,842
Number of Hospitals	1,002	1,002	37	989	985

Notes: All regressions include hospital fixed effects. "Dependent variable mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors clustered at the hospital level. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table 10 then shows the results for another outcome measure: the birth rate (births per bed) by hospital.<sup>41</sup> Our hypothesis here is that a decrease in the tubal ligation rate may lead to more births in Catholic hospitals. As described in the introduction and background, unintended pregnancies have many costs to women and their children. These costs may also vary by race/ethnicity and insurance coverage. Despite this hypothesis, we find no evidence that the birth rate changed, overall or for any racial or

<sup>41</sup> We define births by discharges for delivering mothers that include a live childbirth diagnosis. One might be concerned that this undercounts births due to non-singletons or children born outside of hospitals. Comparing the year-state totals from <https://wonder.cdc.gov/natality.html> yields undercount estimates of less than 10%, suggesting that this is a valid approach.

insurance subgroup.<sup>42</sup> Qualitatively, the magnitudes are small and directionally suggest the opposite of this hypothesis. This is at first surprising, but the conceptual framework used to understand the implications of reduced access to abortion suggest an ambiguous result (Bailey and Lindo 2018). Women who cannot get a tubal ligation due to a change in ownership may seek alternative contraceptive methods, such as LARC, which is growing in popularity over this time period. Furthermore, we see some evidence that women are switching to a non-Catholic hospital for their second birth, which would allow them to get the tubal ligation as planned.

**Table 10: Birth Rate with Racial and Insurance Breakdown**

	(1) All	(2) White	(3) Black	(4) Hispanic	(5) Medicaid	(6) Private	(7) Self-Pay
Catholic	-0.437 (0.365)	-0.0767 (0.355)	-0.0354 (0.0566)	-0.168 (0.161)	0.125 (0.292)	-0.273 (0.240)	-0.138 (0.102)
Dependent variable mean	5.597	2.352	0.516	1.490	2.432	2.799	0.199
R-squared	0.006	0.004	0.003	0.013	0.036	0.006	0.016
Observations	10,067	10,067	10,067	10,067	10,067	10,067	10,067
Number of Hospitals	1,002	1,002	1,002	1,002	1,002	1,002	1,002

*Notes: All regressions include hospital and year fixed effects. "Dependent variable mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$*

A growing literature has shown that hospital loyalty results in welfare losses due to patients persisting with less quality hospitals. In addition, our Table 3 may be biased by composition effects and so we test for sorting of patients by restricting to women who have at least two births during our time of interest. In Table 11 Panel A, we perform an individual level linear probability model for two outcomes: 1) binary for switching hospital between deliveries (regardless of Catholic status) and 2) binary for switching to a hospital that is not Catholic. We cluster standard errors at the level of the birth hospital

<sup>42</sup> We also repeat our analysis by looking at the general fertility (GFR) rate by hospital service area as a function of the share of beds in Catholic hospitals and find analogous results, overall or for any racial subgroup.

for the second birth. We find some suggestive evidence that women are 50% more likely to switch if the hospital where they first gave birth became Catholic between deliveries. These estimates are not precisely estimated. In Table 11 Panel B, we estimate the second outcome (binary for switching to a non-Catholic hospital) for different subgroups of women. We find larger and more precisely estimated effects for black and Hispanic women and women on Medicaid, though we cannot reject the hypothesis that any pair of coefficients is equal to each other.

**Table 11: Catholic Ownership and Women Switching Hospitals between Births**

	(1)	(2)	(3)	(4)	(5)	(6)
<b>Panel A: Overall Switching across First and Second Birth</b>						
	Any Switch			Switch to Non-Catholic		
Hospital to Catholic	0.333* (0.183)	0.135 (0.142)	0.142 (0.138)	0.269* (0.155)	0.149 (0.127)	0.157 (0.125)
Dep. Var. Mean	0.302	0.302	0.302	0.251	0.251	0.251
R-squared	0.002	0.059	0.070	0.001	0.028	0.035
Observations	925,761	925,761	925,761	925,761	925,761	925,761
State FE	N	Y	Y	N	Y	Y
Year FE	N	Y	Y	N	Y	Y
Individual Controls	N	N	Y	N	N	Y
<b>Panel B: Switch Between First and Second Births to Non-Catholic</b>						
	Black	White	Hispanic	Medicaid	Private	Self-Pay
Hospital to Catholic	0.192* (0.112)	0.0952 (0.118)	0.242** (0.117)	0.235*** (0.0804)	0.145 (0.144)	0.169 (0.150)
Dep. Var. Mean	0.300	0.221	0.269	0.285	0.224	0.267
R-squared	0.011	0.048	0.024	0.018	0.046	0.038
Observations	103,186	425,252	233,377	375,981	512,871	17,004
State FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
Individual Controls	Y	Y	Y	Y	Y	Y

*Notes: These regressions are performed on individual level data for the population of states where we have individual person id across hospitalizations. We limit to the sample to women who have exactly two births, and to women whose first hospital was never Catholic or always Catholic (Hospital to Catholic = 0), or switched to Catholic between the years of the first and second birth (Hospital to Catholic = 1). We drop women whose first birth hospital switch from Catholic to non-Catholic affiliation. Columns (1)-(3) of Panel A is a linear probability model of the likelihood a mother switches hospitals between the two births (“Any Switch”) (i.e., the two hospitals have different AHA IDs). Columns (4)-(6) are the likelihood that the mother switches to hospital that is not Catholic. Panel B is a linear probability model for “Switch to Non-Catholic” where each column is a separate subgroup of mothers. In Panel B, all regressions include State and Year FE. Individual controls include dummies for Black, White, Hispanic, and payer categories. “Dep. Var. Mean” row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors clustered at hospital are in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$*

## 8. Robustness checks

Appendix D contains several robustness checks, some of which have been referenced above. Our results are robust to limiting the sample to adult and OB-GYN beds as the denominator, though this reduces our sample because some hospitals' AHA records do not have a breakdown of the general beds (Table D1). They are also robust to only treating a hospital as Catholic affiliated if the hospital itself is Catholic and not just part of a network or system. This reduces the number of switching hospitals from 37 to 32 (Table D6). The results are robust to the inclusion of the county unemployment rate (Table D14).

Our results are also robust to only using hospitals that appear in every year of data we have for their state (Table D7). They are also robust to excluding the years when a hospital changes status, in case we are mis-categorizing those years as we do not have time variables other than year in the HCUP data. This is even the case if we also include an additional year before and after. This is in the spirit of Barreca, et al.'s (2011) "donut" regressions (Tables D15, D16).

Additionally, our results are robust to only considering general hospitals (Table D17) or only considering not-profit hospitals (Table D18), as one might expect them to behave differently than for-profit hospitals (David 2009). Both of these categories can be identified using the AHA data. Our results are also robust to including a state-year fixed effect instead of only a year fixed effect (state fixed effects would be collinear with hospital fixed effects) (Table D19), and to alternate specifications, such as a count, log, and Poisson model, all controlling for the number of beds in the hospital or using a time-invariant measure of beds, or including other controls from the AHA data. (Tables D3, D4, D20 and D21 and Appendix F).<sup>43</sup>

In order to better understand whether hospitals switching to or from Catholic are both experiencing similar levels of consolidation, we estimate models with number of hospitals in the system

---

<sup>43</sup> Our results are robust to a count model that does not control for the number of beds. See Appendix D, Table D2. We also show that the count model is robust to including hospital characteristics in Appendix Table D4.

as the outcome in Table D22. We find some evidence that switching from Catholic to not-Catholic results in a smaller system and may be indicative of deconsolidation.

We also perform a falsification check using the AHA variable for hospital system. We estimate how tubal ligations change with other system changes in Appendix Table D23. If anything, we find positive effects from system changes, although none are precisely estimated. In Column (4), we add this to our primary specification and the coefficient on Catholic ownership is virtually the same as our main result reported in Table 3. We also estimate two models intended to understand any observable differences between hospitals that switch (either to or from Catholic). Table D24 provides these estimates and we do not find evidence that observables are explaining the likelihood that a hospital switches to or from Catholic.

There may be state-level changes in the availability of emergency contraception which could change the population of women seeking tubal ligation or abortion. We collected policy information and created fixed effects for various policy supports or restrictions of emergency contraception and including these controls does not change our main effect.<sup>44</sup>

Lastly, we address potential concerns about the robustness of generalized difference-in-differences (see Goodman-Bacon 2018). In Appendix E, we describe the proposed method and our implementation of it. In particular, we do not find any violation of the variance weighted common trends (VWCT) assumption using the balance test described in Goodman-Bacon (2018). We also calculate the weights proposed and adjust the estimates and find very similar “variance weighted average treatment on the treated” (VWATT) to our main result.

## 9. Discussion

---

<sup>44</sup> The coefficient is -0.140\*\*\*.

Of the 25 largest hospital systems in the United States, one-third are Catholic, with a combined 67,345 staffed beds (Uttley and Khaikin 2016). Multiplying this by our main primary result above from Column (2) of Table 3 (-0.141) translates into 9,496 fewer tubal ligations per year as a result of Catholic restrictions on reproductive care. This alone represents a substantial cost to women, who must subsequently rely on other, less-reliable forms of contraception.

Despite our results that show these substantial decreases when a hospital is Catholic affiliated, the relative effects are less than 100%. This is puzzling, as one would expect the Catholic-based guidelines on a hospital to be binding. One possible hypothesis is that these guidelines are not in fact binding, and physicians have de facto leeway to ignore the guidelines when they see fit. Freedman, Landy, and Steinauer (2008) found exactly this in interviews with obstetrician-gynecologists. Physicians sometimes intentionally disregarded protocol when they believed that patient safety was being compromised.

Another question is why the magnitude of the effects is generally smaller for hospitals that stop being Catholic versus ones that become Catholic. Here, as mentioned above, the likely explanation is that some of the sales of Catholic hospitals contain stipulations keeping the previous religion-based restrictions.<sup>45</sup>

It is also surprising that we do not find substantial changes in welfare (by these measures). It is possible that women having C-sections and then tubal ligations elsewhere is simply too rare (unlike a tubal ligation) for us to measure in our data or that women reduce their take-up of this procedure when they are faced with the restriction.<sup>46</sup> One possible explanation for why we find tubal ligation rates decreasing but no change in birth rates is that outpatient vasectomies increase to compensate as households switch sterilization strategies. The two are obviously close substitutes, with multiple studies

---

<sup>45</sup> See again <http://www.mergerwatch.org/sale-of-religious-hospitals/>

<sup>46</sup> A limitation of our analysis is that we cannot know if patients switched hospitals to undertake procedures after the hospital changed to Catholic.

finding a cross-sectional negative correlation between tubal ligation and vasectomy rates when stratifying by income (Fransoo et al. 2013), education (Anderson et al. 2012), and race (Borrero et al. 2009). Our results suggest that other, specific welfare margins such as the rates of unintended pregnancies would be an appropriate outcome to consider, but this would require substantially different data sets.

That said, our results suggest that more women face the risks of unintended pregnancies when a hospital in their community becomes Catholic and imposes religious-based restrictions on reproductive procedures. Unintended pregnancies result in substantial financial costs and worse outcomes for children. As of 2015, the US Department of Agriculture estimates that it costs \$233,610 to raise a child from birth to the age of 17 (Lino et al 2017). These costs can be a substantial share of the total budget for low-income families. Children who experience an unintended birth of a sibling experience negative spillover effects such as declines in the quality of the home environment and increased behavioral problems (Barber and East 2011). Thus, the effects of an unintended pregnancy on child outcomes are negative and in some cases substantial.

Finally, our results are suggestive of racial disparities in the effect of Catholic restrictions on tubal ligations, with the largest relative effect on Hispanics. This is consistent with the general consensus in the literature that finds racial disparities in health care (e.g., Kirby et al. 2006). We also find suggestive evidence that our effect is stronger for hospitals that are Catholic-owned, and also for Catholic-owned institutions for hospital service areas that have greater market concentration that provide consumers with fewer options.

## **10. Conclusion**

In this paper, we investigate the effect of Catholic hospital ownership on the likelihood that a woman receives appropriate reproductive health care. We use within-hospital, across-patient variation to control for potential differences in patient population across different types of hospitals, including a hospital fixed effect. We compile a new data set of hospital ownership status and characterize hospitals

as “switchers” (from Catholic to non-Catholic and vice versa) or always Catholic/non-Catholic. We find statistically significant reductions in multiple procedures defined as prohibited by the UCCSB religious guidelines. Most concerning are large reductions in the number of tubal ligations performed in Catholic-owned hospitals.

Our results are stronger in hospital service areas that lack competition, that contribute to greater health disparities for low-income women who lack the time or financial resources to travel to another provider in another service area. Women of color and those who do not have a college education are more likely to rely on contraceptive sterilization for birth control (Daniels et al. 2014). For many women, the lack of sterilization results in an unplanned pregnancy: in one study, nearly half of women with an unfulfilled postpartum sterilization request became pregnant within one year (Thurman and Janecek 2010). As a result, the imposition of a particular religion’s medical restrictions on others, without their consent, could have a substantial negative impact. Previous research has shown that children born from unplanned and mistimed pregnancies have substantially worse health outcomes. While we do not see an effect on the overall birth rate at the hospital service area, it is possible that there is still an effect on subsets of the population. We leave it to further research with additional data sets to measure that outcome.



## References

- Abelson, R. 2012. "Catholic Hospitals Expand, Religious Strings Attached," *The New York Times*. <http://www.nytimes.com/2012/02/21/health/policy/growth-of-catholic-hospitals-may-limit-access-to-reproductive-care.html> (accessed August 23, 2017).
- ACOG Practice Bulletin No. 46. 2003. "Benefits and risks of sterilization," *American College of Obstetricians and Gynecologists. Obstet Gynecol.* 102: 647–58.
- Anderson, John E., Denise J. Jamieson, Lee Warner, Dmitry M. Kissin, Ajay K. Nangia, and Maurizio Macaluso. 2012. Contraceptive sterilization among married adults: national data on who chooses vasectomy and tubal sterilization. *Contraception* 85: 552–557.
- Babigumira, J. B., Vlassoff, M., Ahimbisibwe, A., and Stergachis, A. 2015. "Surgery for Family Planning, Abortion, and Postabortion Care," In: Debas HT, Donkor P, Gawande A, et al., editors. *Essential Surgery: Disease Control Priorities, Third Edition (Volume 1)*. (Washington (DC): The International Bank for Reconstruction and Development / The World Bank).
- Bailey, M. J., Hershbein, B., and Miller, A. R. 2012. "The Opt-In Revolution? Contraception and the Gender Gap in Wages," *American Economic Journal: Applied Economics*, 4(3): 225-254.
- Bailey, M., and Lindo, J. 2018. "Access and Use of Contraception and its Effects on Women's Outcomes in the U.S." Forthcoming in *Oxford Handbook on the Economics of Women*, ed. Susan L. Averett, Laura M. Argys, and Saul D. Hoffman, New York: Oxford University Press.
- Bailey, M. J., Malkova, O., and McLaren, Z. M. 2018. "Does access to family planning increase Children's opportunities? evidence from the war on poverty and the early years of title X," *Journal of Human Resources*, 1216.
- Barber, J. S., and Patricia E. 2011. "Children's Experiences after the Unintended Birth of a Sibling." *Demography* 48:101-126.
- Barreca, AI., Guldi, M., Lindo, J.M., and Waddell, G.R. 2011. "Saving Babies? Revisiting The Effect Of Very Low Birth Weight Classification," *The Quarterly Journal of Economics*, 126: 2117–2123.
- Borrero, Sonya, Eleanor B. Schwarz, Matthew F. Reeves, James E. Bost, Mitchell D. Creinin, and Said A. Ibrahim. 2009. Does vasectomy explain the difference in tubal sterilization rates between black and white women? *Fertility and Sterility* 91(5) :1642-1645.
- Bottan, N.L., and Perez-Truglia, R. 2015. "Losing my religion: The effects of religious scandals on religious participation and charitable giving," *Journal of Public Economics*, 129: 106-119.
- Catholics for Choice. 2005. "The Facts about Catholic Health Care in the United States."
- Chartock, Benjamin, Christopher Garmon, and Sarah Schutz. 2018 "Consumer Response to Surprise Medical Bills in Elective Situations." Mimeo from author.

Chung, Andrea Park, Martin Gaynor, and Seth Richards-Shubik. 2017. "Subsidies and structure: the lasting impact of the Hill-Burton program on the hospital industry." *Review of Economics and Statistics* 99.5: 926-943.

Clemens, J., and Ippolito, B. "Uncompensated Care and the Collapse of Hospital Payment Regulation: An Illustration of the Tinbergen Rule," National Bureau of Economic Research

Committee on Health Care for Underserved Women. 2012. "Committee opinion no. 530: access to postpartum sterilization," *Obstetrics and gynecology*, 120(1): 212.

Cook, A., Gaynor, M., Stephens Jr, M., & Taylor, L. 2010. *The Effect of Hospital Nurse Staffing on Patient Health Outcomes: Evidence from California's Minimum Staffing Regulation* (No. w16077). National Bureau of Economic Research.

Cintina, I., and Johansen, M. S. 2015. "The Effect of Plan B on Teen Abortions: Evidence from the 2006 FDA Ruling," *Contemporary Economic Policy*, 33(3): 418-433

Cunningham, S., Lindo, J. M., Myers, C., and Schlosser, A. 2017. "How Far Is Too Far? New Evidence on Abortion Clinic Closures, Access, and Abortions." NBER Working Paper No. 23366.

Cutler D. M., Huckman, R. S., and Kolstad, J. T. 2010. "Input Constraints and the Efficiency of Entry: Lessons from Cardiac Surgery," *American Economic Journal: Economic Policy*, 2(1): 51-76.

Dafny, L. 2009. "Estimation and Identification of Merger Effects: An Application to Hospital Mergers," *Journal of Law and Economics*, 52(3): 523-550.

Dafny, L. 2014. "Hospital Industry Consolidation—Still More to Come?" *New England Journal of Medicine*, 370(3): 198-199.

David, G. 2009. "The Convergence between Nonprofit and For-Profit Hospitals in the United States," *International Journal of Health Care Finance and Economics*, 9(4): 403-428.

Daniels, K., Daugherty, J., and Jones, J. 2014. "Current contraceptive status among women aged 15–44: United States, 2011–2013," *NCHS data brief*, 173: 1-8.

Dranove D., Lindrooth R., White W., and Zwanziger J. 2008. "Is the Impact of Managed Care on Hospital Prices Decreasing?" *Journal of Health Economics*, 27(2): 362-376.

Dranove, David. "Health care markets, regulators, and certifiers." *Handbook of health economics*. Vol. 2. Elsevier, 2011. 639-690.

Encinosa, W. E., and Bernard, D. M. 2005. "Hospital finances and patient safety outcomes," *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*, 42(1): 60-72.

Eckholm, E. 2013. "Bishops sued over anti-abortion policies at Catholic Hospitals," *NY Times*. <http://www.nytimes.com/2013/12/03/us/lawsuit-challenges-anti-abortion-policies-at-catholic-hospitals.html> (accessed August 23, 2017).

- Eggleston, K., Shen, Y. C., Lau, J., Schmid, C.H., and Chan, J. 2008. "Hospital ownership and quality of care: what explains the different results in the literature?" *Health economics*, 17(12), 1345-1362.
- Fischer, S., Royer, H., and White, C. 2017. "The Impacts of Reduced Access to Abortion and Family Planning Services: Evidence from Texas." NBER Working Paper No. 23634.
- Foster, Angel M., Amanda Dennis, and Fiona Smith. "Do religious restrictions influence ectopic pregnancy management? A national qualitative study." *Women's Health Issues* 21.2 (2011): 104-109.
- Freedman, L. R., Landy, U., and Steinauer, J. 2008. "When there's a heartbeat: miscarriage management in Catholic-owned hospitals," *American Journal of Public Health*, 98(10), 1774-1778.
- Fransoo, Randall, Jill Bucklaschuk, Heather Prior, Elaine Burland, Daniel Chateau, and Patricia Martens. 2013. *Social Gradients in Surgical Sterilization Rates: Opposing Patterns for Males and Females.* *Journal of Obstetrics and Gynaecology Canada* 35(5):454–460.
- Freedman, L. R., and Stulberg, D. B. 2013. "Conflicts in care for obstetric complications in Catholic hospitals," *AJOB Primary Research*, 4(4), 1-10.
- Gaynor, M., and Town, R. 2012. *The impact of hospital consolidation: update.* (Princeton, NJ: Robert Wood Johnson Foundation).
- Goodman-Bacon, A. 2018. "Difference-in-Differences with Variation in Treatment Timing," National Bureau of Economic Research.
- Guiahi, M., Sheeder, J., and Teal, S. 2014. "Are women aware of religious restrictions on reproductive health at Catholic hospitals? A survey of women's expectations and preferences for family planning care." *Contraception*, 90(4): 429-434.
- Guterman, K. 2015. "Unintended pregnancy as a predictor of child maltreatment." *Child Abuse & Neglect*. 48: 160-169.
- Hall, JA., Benton, L., Copas, A., and Stephenson J. 2017. "Pregnancy Intention and Pregnancy Outcome: Systematic Review and Meta-Analysis." *Maternal and Child Health Journal*. 21: 670-704.
- Harrison, T. 2005. "Availability of emergency contraception: a survey of hospital emergency department staff." *Annals of emergency medicine*, 46(2): 105-110.
- Healthcare Cost and Utilization Project (HCUP). 1998-2013. "HCUP State Inpatient Databases (SID)." Agency for Healthcare Research and Quality, Rockville, MD. [www.hcup-us.ahrq.gov/sidoverview.jsp](http://www.hcup-us.ahrq.gov/sidoverview.jsp) (accessed August 23, 2017).
- Health Forum. 1998-2013. "AHA Annual Survey Database." American Hospital Association. <https://www.ahadataviewer.com/additional-data-products/AHA-Survey/> (accessed August 23, 2017).
- Hungerman, DM. 2013. "Substitution and stigma: Evidence on religious markets from the catholic sex abuse scandal," *American Economic Journal: Economic Policy*, 5(3), 227-253.
- Irace, Mariano. "Patient Loyalty in Hospital Choice: Evidence from New York." Working Paper (2018).

- Joyce, T. J., Kaestner, R., and Korenman S. 2000. "The effect of pregnancy intention on child development." *Demography*, 37(1): 83-94.
- Kaunitz, A. M., Harkins, G., and Sanfilippo J. S. 2008. "Obstetric sterilization following vaginal or cesarean delivery: a technical update," *OBG Manage* 20: S1–8.
- Kirby, J.B., Taliaferro G., and Zuvekas S. H. 2006. "Explaining racial and ethnic disparities in health care," *Med Care*, 44(5 Suppl): I64-72.
- Kost, K., and Lindberg, L. 2015. Pregnancy Intentions, Maternal Behaviors, and Infant Health: Investigating Relationships With New Measures and Propensity Score Analysis. *Demography*, 52(1), 83–111.
- Lee, P. G. 2016. "This Data on Hospitals Will Make You Sick." *Mother Jones*.  
<http://www.motherjones.com/politics/2016/06/how-hospital-mergers-put-patients-at-risk/> (accessed August 23, 2017).
- Lino, M., Kuczynski, K., Rodriguez, N., and Schap, T. 2017. Expenditures on Children by Families, 2015. Miscellaneous Publication No. 1528-2015. U.S. Department of Agriculture, Center for Nutrition Policy and Promotion.
- Lu, Y., and Slusky, D. J. G. 2018. "The Impact of Women's Health Clinic Closures on Fertility." Forthcoming in *American Journal of Health Economics*.
- Martin, N. 2013. "Catholic Hospitals Grow, and With Them Questions of Care." *Propublica*.  
<https://www.propublica.org/article/catholic-hospitals-grow-and-with-them-questions-of-care> (accessed August 23, 2017).
- Mencimer, S. 2013. "Do Bishops Run Your Hospital? The Catholic Church is making health care decisions for more and more Americans- whether they know it or not." *Mother Jones*.  
<http://www.motherjones.com/politics/2013/10/catholic-hospitals-bishops-contraception-abortion-health-care/> (accessed August 23, 2017).
- Neprash, H. T., Chernew, M. E., and McWilliams, J.M., 2017. "Little evidence exists to support the expectation that providers would consolidate to enter new payment models," *Health Affairs*, 36(2): 346-354.
- National Women's Law Center. 2011. "Below the Radar: Health Care Providers' Religious Refusals Can Endanger Women's Lives and Health."
- Packham, A. 2017. "Family Planning Funding Cuts and Teen Childbearing." *Journal of Health Economics*, 55(1): 168-185
- Quast, T., Gonzalez, F., and Ziemba, R. 2017. "Abortion Facility Closings and Abortion Rates in Texas." *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*, 54: 1-7.

Raval, Devesh and Ted Rosenbaum. 2018. "Why Do Previous Choices Matter for Hospital Demand? Decomposing Switching Costs from Unobserved Preferences". *Review of Economics and Statistics*, forthcoming.

Rogowski, J., Jain, A. K., and Escarce, J. J. 2007. "Hospital Competition, Managed Care, and Mortality after Hospitalization for Medical Conditions in California," *Health Services Research*, 42(2): 682–705.

Redden M. 2016. "Abortion ban linked to dangerous miscarriages at Catholic hospital, report claims." *The Guardian*. <https://www.theguardian.com/us-news/2016/feb/18/michigan-catholic-hospital-women-miscarriage-abortion-mercy-health-partners> (accessed August 23, 2017).

Rubin, S. E., Grumet, S., and Prine, L. 2006. "Hospital religious affiliation and emergency contraceptive prescribing practices," *American Journal of Public Health*, 96(8): 1398-1401.

Salkever, David S. 2000. "Regulation of prices and investment in hospitals in the United States." *Handbook of health economics*1: 1489-1535

Stulberg, D. B., Lawrence, R. E., Shattuck, J., and Curlin, F. A. 2010. "Religious hospitals and primary care physicians: conflicts over policies for patient care," *Journal of General Internal Medicine*, 25(7): 725-730.

Stulberg, D. B., Dude, A. M., Dahlquist, I., and Curlin, F. A. 2012. "Obstetrician-gynecologists, religious institutions, and conflicts regarding patient-care policies," *American Journal of Obstetrics and Gynecology*, 207(1): 73-e1.

Stulberg, D. B., Hoffman, Y., Dahlquist, I. H., and Freedman, L.R. 2014. "Tubal ligation in Catholic hospitals: a qualitative study of ob-gyns' experiences," *Contraception*, 90(4): 422-428.

Tenn S. 2011. "The Price Effects of Hospital Mergers: A Case Study of the SutterSummit Transaction," *International Journal of the Economics of Business*, 18(1): 65-82.

Thurman, A. R., and Janecek, T. 2010. "One-year follow-up of women with unfulfilled postpartum sterilization requests," *Obstetrics & Gynecology*, 116(5): 1071-1077.

Uttley, L., and Khaikan, C. 2016. *Growth of Catholic Hospitals and Health Systems: 2016 Update of the Miscarriage of Medicine Report*, (New York, NY: The MergerWatch Project).

Uttley, L., Reynertson, S., Kenny, L., and Melling, L. 2013. *Miscarriage of medicine: the growth of Catholic hospitals and the threat of reproductive health care*, (New York, NY: The MergerWatch Project and the American Civil Liberties Union).

United States Conference of Catholic Bishops. 2009. "Ethical and religious directives for Catholic health care services." <http://www.usccb.org/issues-and-action/human-life-and-dignity/health-care/upload/Ethical-Religious-Directives-Catholic-Health-Care-Services-fifth-edition-2009.pdf> (accessed August 23, 2017).

Wu V. 2009. "Managed Care's Price Bargaining with Hospitals," *Journal of Health Economics*, 28(2): 350-360.

Appendix A

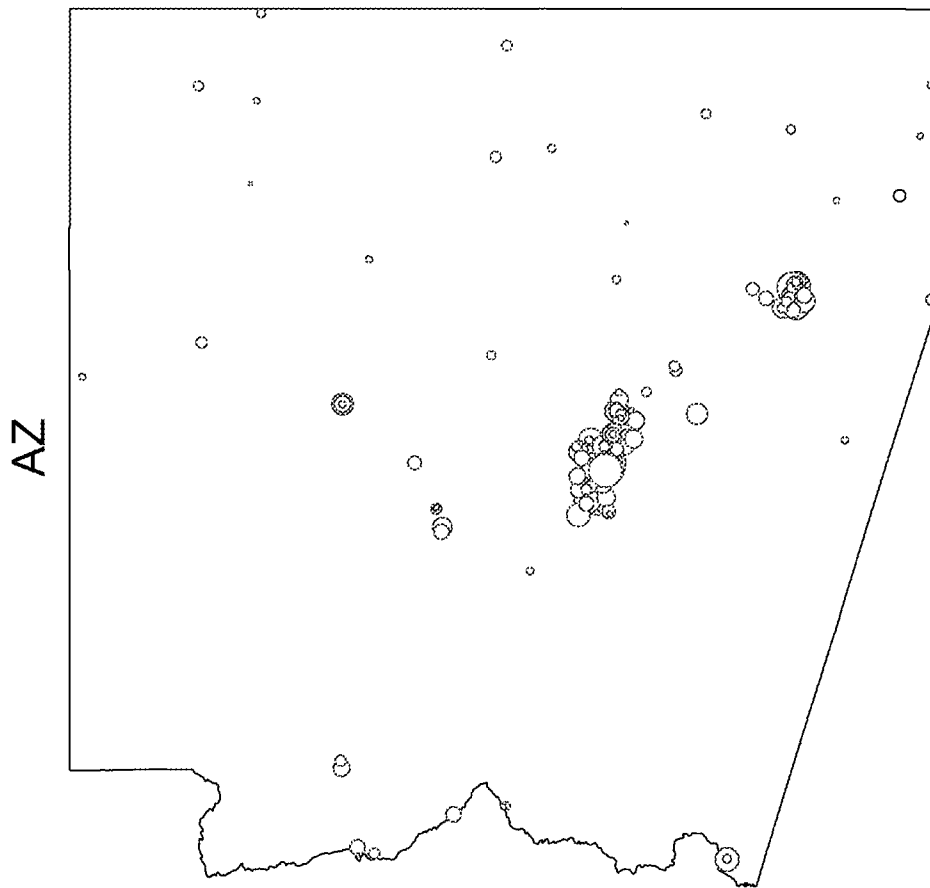
Catholic Hospitals are governed by the Ethical and Religious Directives for Catholic Health Care (Directives), some of which restrict reproductive health care of women:

- “Catholic hospitals may not promote or condone contraceptive practices.” (Directive 52)
- “Abortion (that is, the directly intended termination of pregnancy before viability or the directly intended destruction of a viable fetus) is never permitted.” (Directive 45)
- “Prenatal diagnosis is not permitted when undertaken with the intention of aborting an unborn child with a serious defect.” (Directive 10)
- “In case of extrauterine pregnancy, no intervention is morally licit which constitutes a direct abortion.” (Directive 48)
- “Heterologous fertilization (that is, any technique used to achieve conception by the use of gametes coming from at least one donor other than the spouses) is prohibited because it is contrary to the covenant of marriage, the unity of the spouses, and the dignity proper to parents and the child.” (Directive 40)
- “Direct sterilization of either men or women, whether permanent or temporary, is not permitted in a Catholic health care institution.” (Directive 53) “Catholic health care services must . . . require adherence to [the Directives] within the institution as a condition for medical privileges and employment.” (Directive 5)

Appendix B

Figure B1: Maps

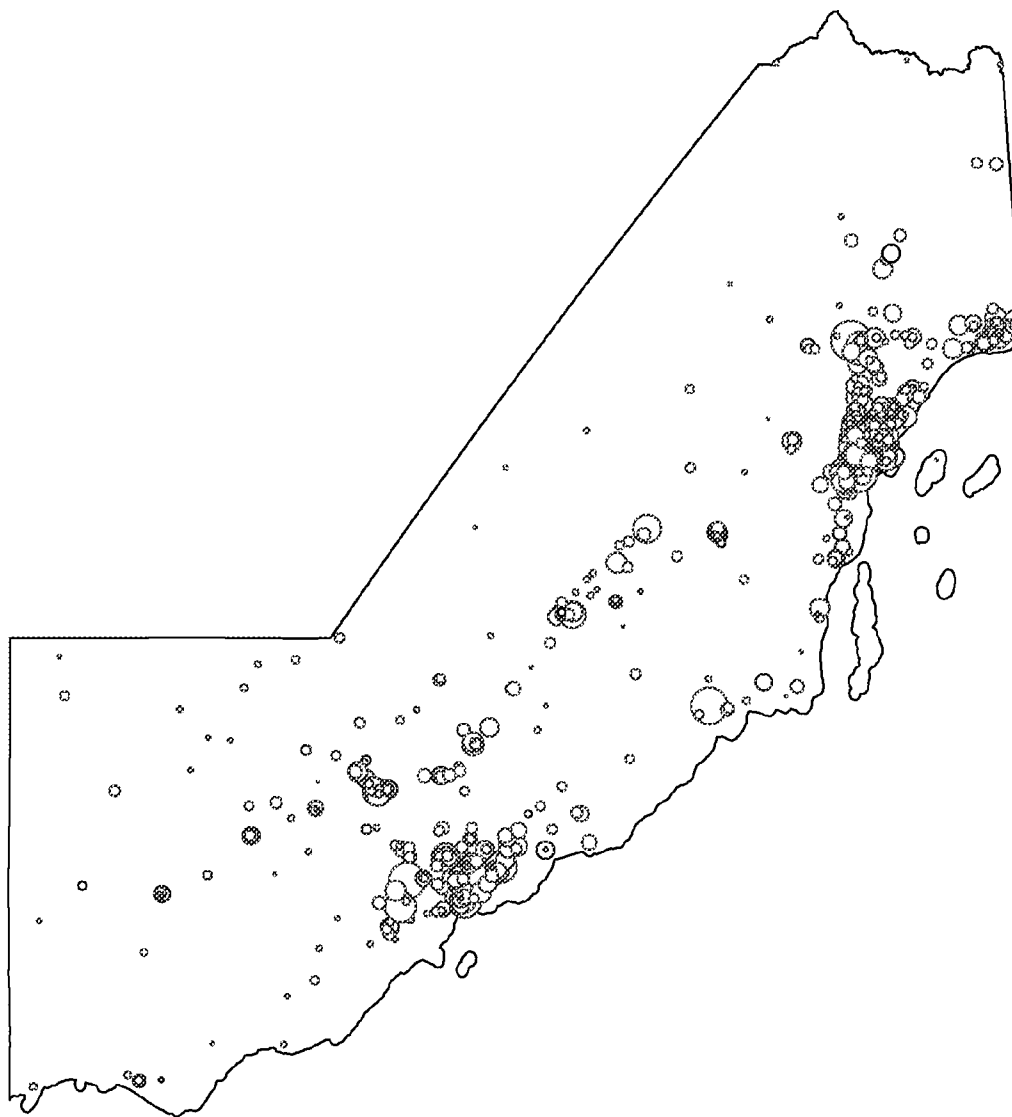
Panel A:



*Note: Blue: Always Catholic; Purple: Never Catholic; Red: To Catholic; Green: From Catholic; Black: To & From Catholic*

Panel B:

CA

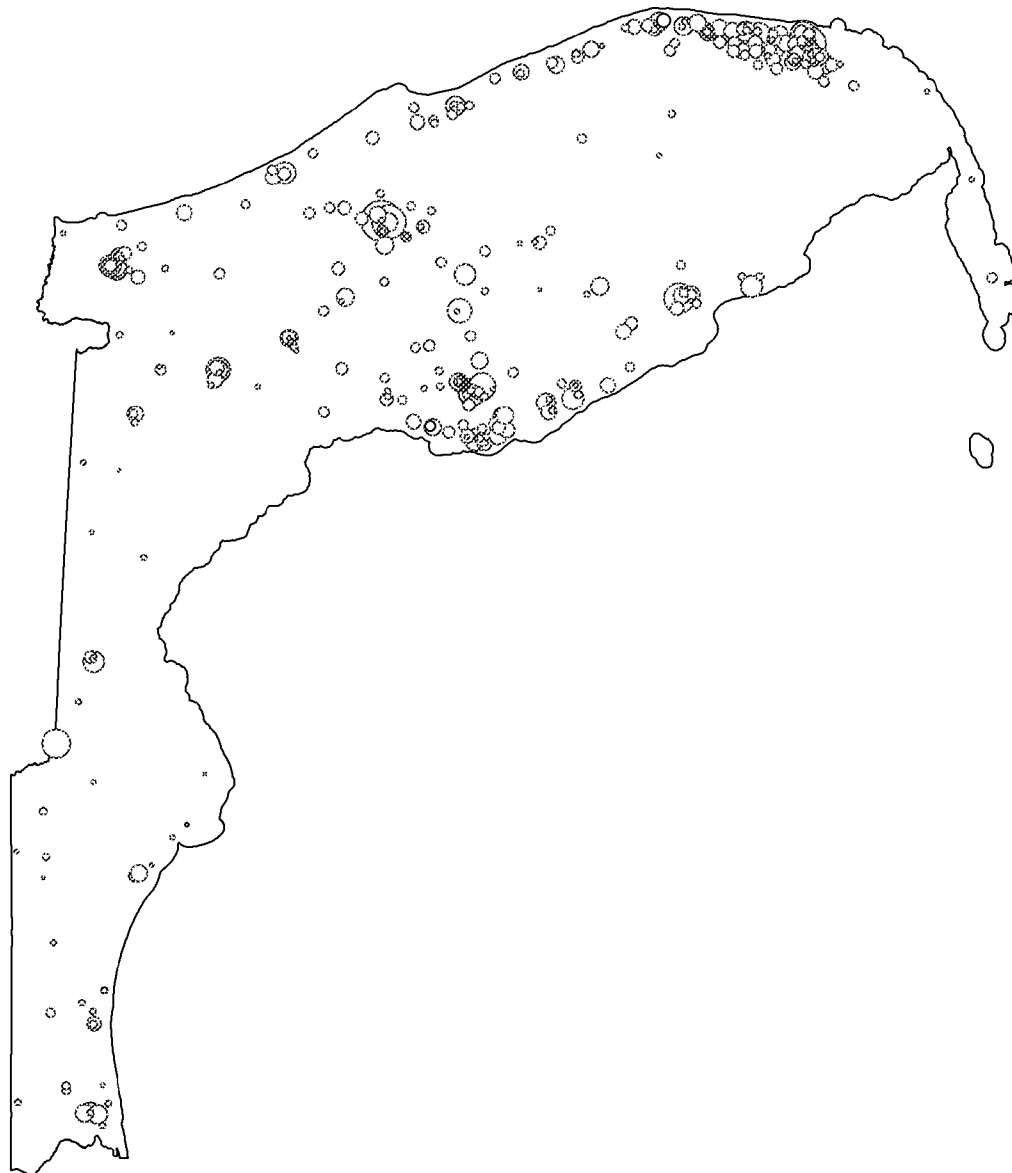


*Note: Blue: Always Catholic; Purple: Never Catholic; Red: To Catholic; Green: From Catholic; Black: To & From Catholic*



Panel C:

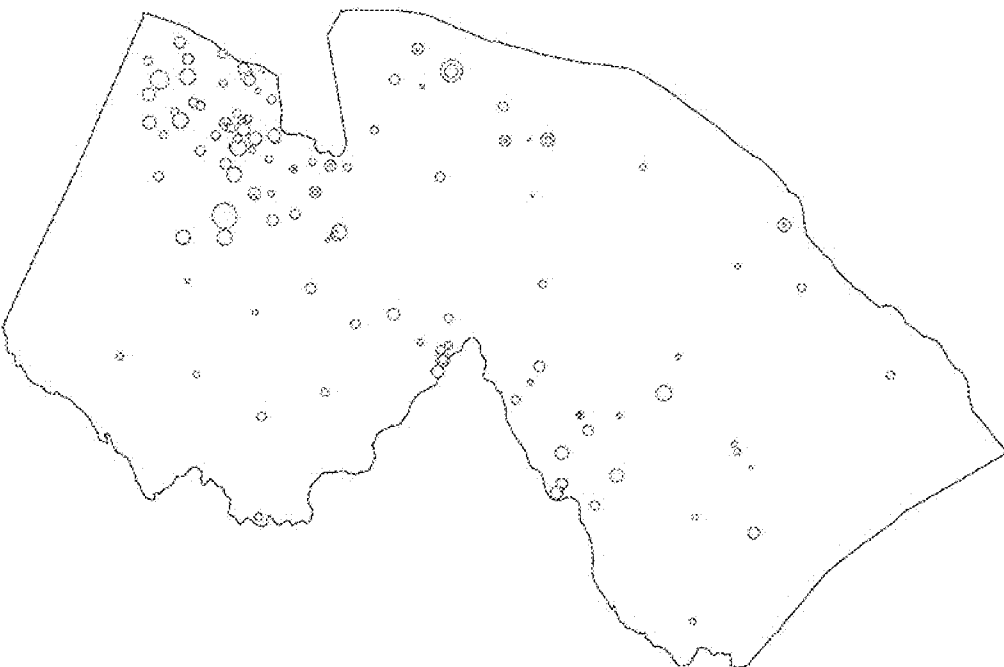
FL



*Note: Blue: Always Catholic; Purple: Never Catholic; Red: To Catholic; Green: From Catholic; Black: To & From Catholic*

Panel D:

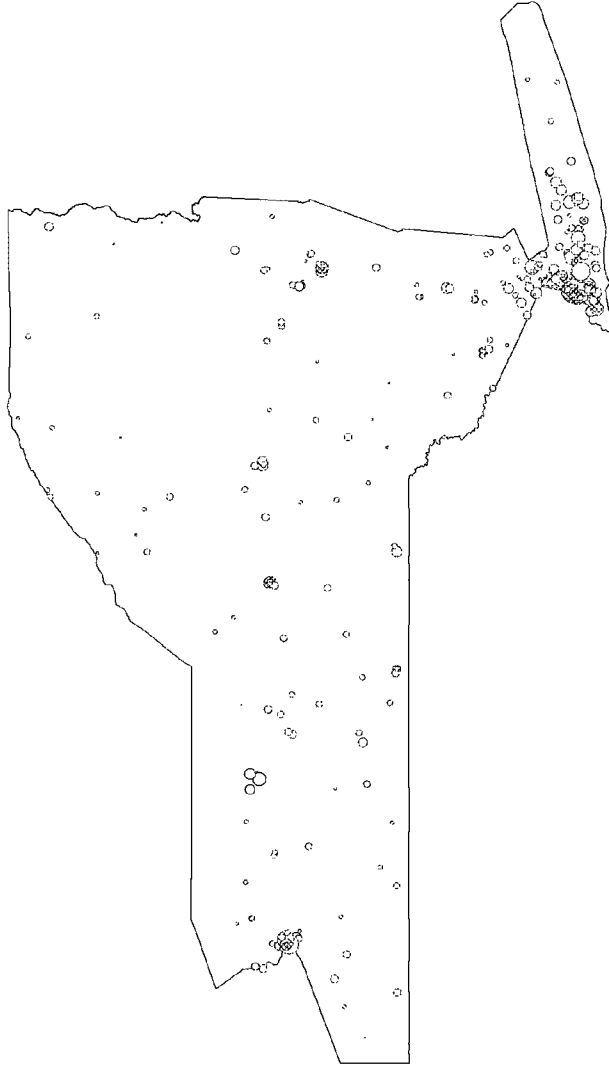
NJ



*Note: Blue: Always Catholic; Purple: Never Catholic; Red: To Catholic; Green: From Catholic; Black: To & From Catholic*

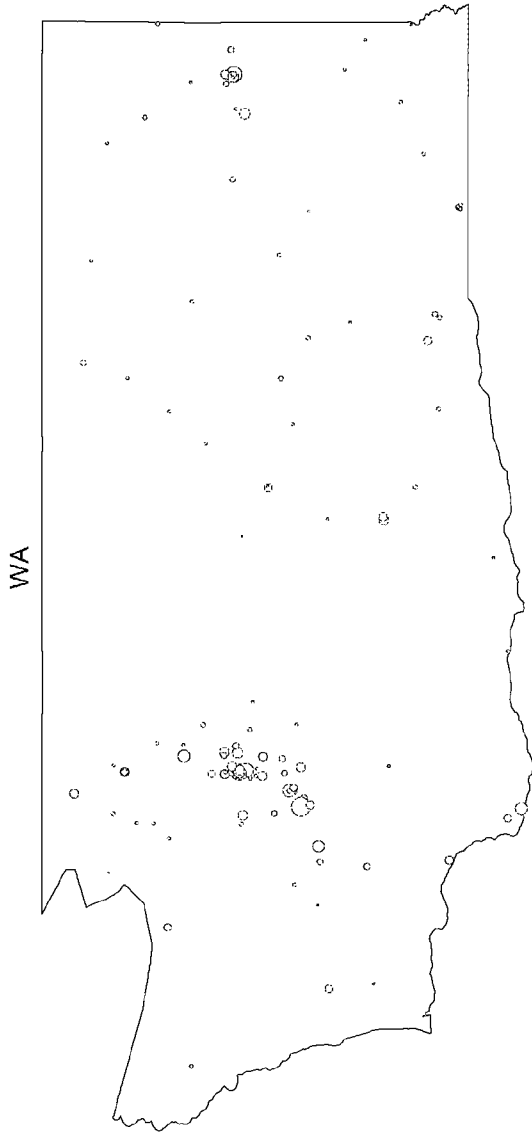
Panel E:

NY



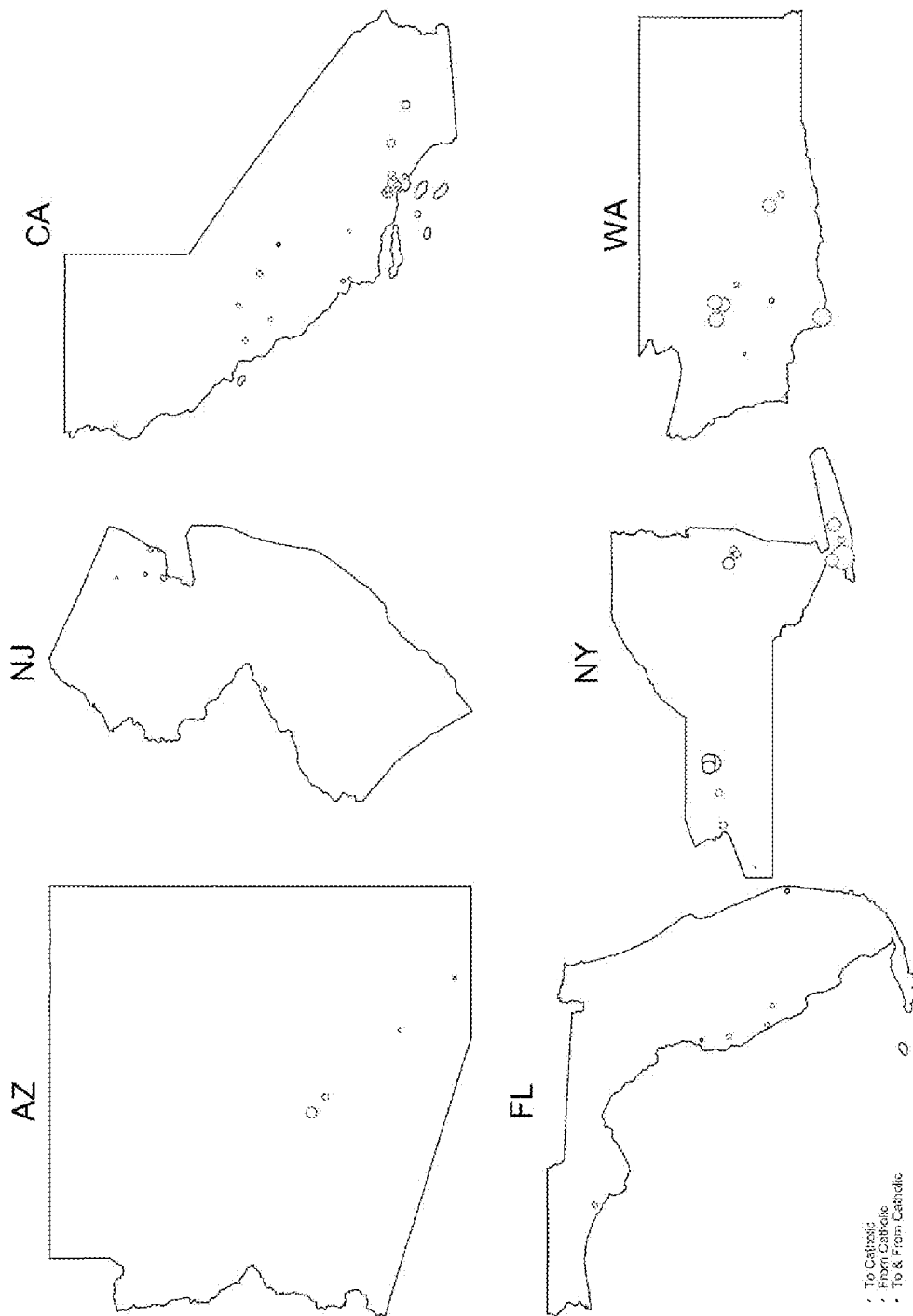
*Note: Blue: Always Catholic; Purple: Never Catholic; Red: To Catholic; Green: From Catholic; Black: To & From Catholic*

Panel F:



*Notes: Blue: Always Catholic; Purple: Never Catholic; Red: To Catholic; Green: From Catholic; Black: To & From Catholic*

Figure B2: Map of Switcher Hospitals



Appendix C

Table C1:Hospital-Years by States and Year

Year	Arizona	California	Florida	New Jersey	New York	Washington	Total
1998	52	0	174	75	202	76	579
1999	48	0	167	75	194	74	558
2000	49	0	166	75	193	74	557
2001	48	0	166	69	189	74	546
2002	47	0	166	73	184	72	542
2003	46	230	168	72	186	69	771
2004	48	272	167	74	179	70	810
2005	47	283	160	73	175	69	807
2006	45	312	170	71	174	72	844
2007	46	304	158	68	171	73	820
2008	48	300	161	64	142	69	784
2009	46	301	160	66	143	73	789
2010	51	0	164	62	138	71	486
2011	0	0	159	61	153	71	444
2012	0	0	154	0	147	70	371
2013	0	0	155	0	138	66	359
Total	621	2,002	2,615	978	2,708	1,143	10,067

Appendix D Robustness checks

Table D1: Adult &amp; Ob-Gyn Beds Instead of All Beds

	(1) Tubal Ligation	(2) C-section & Tubal Ligation	(3) Vasectomy	(4) Abortion	(5) C-section
Catholic	-0.239** (0.113)	-0.134** (0.0568)	-0.00110*** (0.000393)	-0.00268* (0.00157)	-0.224 (0.256)
Dependent variable mean	0.753	0.491	0.000881	0.00961	2.811
R-squared	0.012	0.032	0.007	0.006	0.041
Observations	7,874	7,874	7,874	7,874	7,874
Number of Hospitals	933	933	933	933	933

*Notes: All regressions include hospital and year fixed effects. "Dependent variable mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors are clustered at hospital level in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$*

Table D2: Count Model, Without Controlling for Beds

	(1) Tubal Ligation	(2) C-section & Tubal Ligation	(3) Vasectomy	(4) Abortion	(5) C-section
Catholic	-28.22*** (8.460)	-15.85** (7.041)	-0.0965*** (0.0325)	-0.228 (0.306)	-2.093 (33.08)
Dep. Var. Mean	107.4	73.09	0.128	1.679	435.9
R-squared	0.030	0.109	0.007	0.012	0.185
Observations	10,067	10,067	10,067	10,067	10,067
Number of Hospitals	1,002	1,002	1,002	1,002	1,002

*Notes: Estimates are from a linear model. Dependent variable is the number of procedures performed in each hospital in each year. All regressions include hospital and year fixed effects. "Dep. Var. Mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors in parentheses. \*\*  $p < 0.01$ , \*  $p < 0.05$ , \*  $p < 0.1$*

Table D3: Fixed Effect Poisson, Controlling for Beds

	(1) Tubal Ligation	(2) C-section & Tubal Ligation	(3) Vasectomy	(4) Abortion	(5) C-section
Catholic	-0.433*** (0.148)	-0.440*** (0.159)	-0.964*** (0.346)	-0.237 (0.293)	-0.0630 (0.0785)
Number of Beds	0.000263*** (9.14e-05)	0.000337*** (9.17e-05)	0.000899 (0.000554)	0.00121** (0.000536)	0.000422*** (6.85e-05)
Observations	9,372	8,203	5,300	7,423	8,826
Number of Hospitals	863	744	429	647	803

Notes: Estimates are from a Poisson model. Dependent variable is the number of procedures performed in each hospital in each year. All regressions include hospital and year fixed effects. Robust standard errors in parentheses. \*\*  $p < 0.01$ , \*  $p < 0.05$ , \*  $p < 0.1$

Table D4: Additional AHA Controls and Time-Invariant Base-Measures for Count, Rate and Fixed-Effects Poisson Models

	(1) Count	(2) Count	(3) Count	(4) Rate	(5) Rate	(6) Poisson	(7) Poisson
Catholic	-29.02*** (8.450)	-25.52*** (6.881)	-26.35*** (6.179)	-0.131*** (0.0445)	-0.141*** (0.0362)	-.431*** (0.0149)	-.431*** (.0147)
Observations	10,067	10,067	5,601	10,067	10,067	9,372	9,372
R-squared	0.006	0.172	0.199	0.026	0.023	N/A	N/A
Number of Hospitals	1,002	1,002	713	1,002	1,002	1,002	863
Dep. Var. Mean	107.4	107.4	107.4	0.457	0.459		
Controls		No missing	Most				
Denominator				Start Beds	End Beds	Start Beds	End Beds

Notes: Estimates in Columns 1-3 are from a linear model and the dependent variable is the number of tubal ligations performed in each hospital year. We add AHA controls described as “no missing”: total payroll expenses, total expenses, total births, total admissions, FTE Physicians and Dentists, FTE Registered Nurses, FTE Medical and Dental Residents, and Total Beds and “most”: includes no missing plus Beds in the NICU, obstetrics service level, and obstetric beds. For Columns 4 and 5, the dependent variable is the per bed tubal ligation rate. Columns 6 and 7 are from a Poisson model and the dependent variable is the number of tubal ligation procedures performed in each hospital in each year. All regressions include hospital and year fixed effects. “Dep Var. Mean” row refers to the mean for hospitals that are not Catholic in that year. We use two time-invariant beds measures from the first year of data (“Start Beds”) and from the last year of data (“End Beds”). Robust standard errors in parentheses are clustered at the hospital. \*\*  $p < 0.01$ , \*  $p < 0.05$ , \*  $p < 0.1$



Table D5: Dropping One State at a Time

	(1) Drop AZ	(2) Drop CA	(3) Drop FL	(4) Drop NJ	(5) Drop NY	(6) Drop WA
Catholic	-0.149*** (0.0397)	-0.132*** (0.0434)	-0.138*** (0.0444)	-0.117*** (0.0448)	-0.179*** (0.0491)	-0.138*** (0.0437)
Dependent variable mean	0.453	0.398	0.472	0.463	0.518	0.441
R-squared	0.011	0.012	0.008	0.019	0.013	0.011
Observations	9,446	8,065	7,452	9,089	7,359	8,924
Number of Hospitals	935	658	800	916	786	915

Notes: Dependent variable is the per bed tubal ligation rate. All regressions include hospital and year fixed effects. "Dependent variable mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table D6: Only Catholic Hospital are Catholic - System or Ownership Are Not Enough

	(1) Tubal Ligation	(2) C-section & Tubal Ligation	(3) Vasectomy	(4) Abortion	(5) C-section
Catholic	-0.146*** (0.0431)	-0.0779*** (0.0274)	-0.000713*** (0.000193)	-0.00225*** (0.000681)	-0.117 (0.113)
Dependent variable mean	0.457	0.301	0.000546	0.00546	1.710
R-squared	0.011	0.025	0.005	0.003	0.033
Observations	10,067	10,067	10,067	10,067	10,067
Number of Hospitals	1,002	1,002	1,002	1,002	1,002

Notes: All regressions include hospital and year fixed effects. "Dependent variable mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors are clustered at hospital level in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table D7: Only Hospitals That Appear in All Years of Their State's Data

	(1) Tubal Ligation	(2) C-section & Tubal Ligation	(3) Vasectomy	(4) Abortion	(5) C-section
Catholic	-0.188*** (0.0459)	-0.0999*** (0.0303)	-0.000651** (0.000331)	-0.000804 (0.000922)	-0.129 (0.117)
Dependent variable mean	0.498	0.328	0.000526	0.00441	1.852
R-squared	0.023	0.031	0.008	0.019	0.064
Observations	7,138	7,138	7,138	7,138	7,138
Number of Hospitals	564	564	564	564	564

Notes: All regressions include hospital and year fixed effects. "Dependent variable mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors are clustered at hospital level in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table D8: All Hospitals with Any Discharges in HCUP in a Given Year

	(1) Tubal Ligation	(2) C-section & Tubal Ligation	(3) Vasectomy	(4) Abortion	(5) C-section
Catholic	-0.114*** (0.0361)	-0.0594** (0.0234)	-0.000609*** (0.000210)	-0.00131** (0.000514)	-0.0561 (0.101)
Mean	0.352	0.232	0.000422	0.00423	1.315
R-squared	0.012	0.021	0.005	0.003	0.026
Observations	12,766	12,766	12,766	12,766	12,766
Number of Hospitals	1,241	1,241	1,241	1,241	1,241

Notes: All regressions include hospital and year fixed effects. "Dependent variable mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table D9: Without Hospital Fixed Effects

	(1) Tubal Ligation	(2) C-section & Tubal Ligation	(3) Vasectomy	(4) Abortion	(5) C-section
Catholic	-0.267*** (0.0290)	-0.155*** (0.0216)	-0.000394*** (5.12e-05)	-0.00511*** (0.00160)	-0.0349 (0.123)
Dependent variable mean	0.456	0.300	0.000547	0.00548	1.704
R-squared	0.035	0.043	0.006	0.002	0.030
Observations	10,067	10,067	10,067	10,067	10,067
Number of Hospitals	1,002	1,002	1,002	1,002	1,002

Notes: All regressions include year fixed effects. "Dependent variable mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table D10: Dropping Two To-Catholic Hospitals with Strong Pre Trends

	(1) Tubal Ligation	(2) C-section & Tubal Ligation	(3) Vasectomy	(4) Abortion	(5) C-section
Catholic	-0.124*** (0.0405)	-0.0636** (0.0275)	-0.000798*** (0.000248)	-0.00184*** (0.000686)	-0.0347 (0.110)
Dependent variable mean	0.455	0.300	0.000547	0.00548	1.702
R-squared	0.010	0.025	0.006	0.003	0.033
Observations	10,044	10,044	10,044	10,044	10,044
Number of Hospitals	1,000	1,000	1,000	1,000	1,000

Notes: All regressions include hospital and year fixed effects. "Dependent variable mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table D11: Impact of Catholic Hospitals on Tubal Ligations Over Time

	(1)	(2)	(3)	(4)	(5)	(6)
Catholic	-0.155*** (0.0403)	-0.134*** (0.0432)	-0.161*** (0.0374)	-0.146*** (0.0374)	-0.165*** (0.0405)	-0.148*** (0.0394)
Lag 1-2yrs		-0.0492 (0.0375)		-0.0285 (0.0235)		-0.0601** (0.0296)
Lag 3-4 yrs				-0.0242 (0.0478)		0.0277 (0.0426)
Lag 5-6 yrs						-0.0272 (0.0350)
Observations	7,996	7,996	6,157	6,157	4,529	4,529
R-squared	0.026	0.026	0.032	0.032	0.050	0.051
Number of Hospitals	921	921	843	843	730	730
No Change	Y	Y	Y	Y	Y	Y
To Catholic	Y	Y	Y	Y	Y	Y
From Catholic	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y

Notes: All regressions include hospital and year fixed effects. Robust standard errors are clustered at hospital in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table D12: All Reproductive Discharges

	(1)	(2)	(3)	(4)	(5)	(6)
	Tubal Ligation Count	Tubal Ligation Count	Tubal Ligation Rate	Reproductive Discharge Count	Reproductive Discharge Count	Reproductive Discharge Rate
Catholic	-23.92*** (8.599)	-24.70*** (8.614)	-0.129*** (0.0382)	37.43 (113.1)	17.58 (106.3)	-0.445 (0.400)
Number of beds		0.0438*** (0.0155)			1.113*** (0.181)	
Mean	97.26	97.26	0.413	1452	1452	5.917
R-squared	0.027	0.032	0.011	0.022	0.049	0.006
Observations	11,035	11,035	11,035	11,035	11,035	11,035
Number of Hospitals	1,122	1,122	1,122	1,122	1,122	1,122

Notes: All regressions include hospital and year fixed effects. "Dependent variable mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors in parentheses. \*\*  $p < 0.01$ , \*  $p < 0.05$ , \*  $p < 0.1$

Table D13: Catholic Ownership on Time from Birth to Tubal Ligation

	(1)	(2)	(3)	(4)
	Tubal Ligation	Days Between Birth & Tubal Ligation	C-section & Tubal Ligation	Days Between C-section & Tubal Ligation
Catholic	-0.151*** (0.0385)	169.0 (134.8)	-0.161*** (0.0421)	-1.241 (1.061)
Observations	4,606	4,606	4,535	4,535
R-squared	0.035	0.035	0.036	0.005
Number of Hospital	688	688	657	657
To Catholic	Y	Y	Y	Y
From Catholic	Y	Y	Y	Y
Dependent Var Mean	0.617	14.31	0.626	5.610

Notes: All regressions include hospital and year fixed effects. "Dependent variable mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table D14: Impact of Catholic Ownership on Tubal Ligations Controlling for County-Level Unemployment

	(1)	(2)	(3)	(4)
Catholic	-0.141*** (0.0402)	-0.140*** (0.0406)	-0.150*** (0.0441)	-0.150*** (0.0441)
County unemployment rate		-0.0128*** (0.00482)		-0.0116 (0.0164)
No Change	Y	Y	N	N
To Catholic	Y	Y	Y	Y
From Catholic	Y	Y	Y	Y
R-squared	0.011	0.012	0.143	0.143
Observations	10,067	10,067	491	491
Number of Hospital	1,002	1,002	37	37

Notes: All regressions include hospital and year fixed effects. "Dependent variable mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors are clustered at hospital level in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table D15: Donut Regression, Excluding Years When a Hospital Switched

	(1) Tubal Ligation	(2) C-section & Tubal Ligation	(3) Vasectomy	(4) Abortion	(5) C-section
Catholic	-0.166*** (0.0479)	-0.0895*** (0.0328)	-0.00075*** (0.000284)	-0.00201** (0.000788)	-0.111 (0.133)
Dependent variable mean	0.457	0.300	0.000548	0.00549	1.706
R-squared	0.011	0.025	0.005	0.003	0.033
Observations	10,023	10,023	10,023	10,023	10,023
Number of Hospitals	1,002	1,002	1,002	1,002	1,002

*Notes: All regressions include hospital and year fixed effects. "Dependent variable mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors are clustered at hospital level in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$*

Table D16: Donut Regression, Excluding Years When a Hospital Switched and +/- 1 Year

	(1) Tubal Ligation	(2) C-section & Tubal Ligation	(3) Vasectomy	(4) Abortion	(5) C-section
Catholic	-0.161*** (0.0600)	-0.0895** (0.0427)	-0.00119** (0.000462)	-0.00288*** (0.00105)	-0.0350 (0.168)
Dependent variable mean	0.457	0.301	0.000550	0.00550	1.707
R-squared	0.010	0.025	0.006	0.003	0.033
Observations	9,949	9,949	9,949	9,949	9,949
Number of Hospitals	1,002	1,002	1,002	1,002	1,002

*Notes: All regressions include hospital and year fixed effects. "Dependent variable mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors are clustered at hospital level in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$*

Table D17: General Hospitals Only

	(1) Tubal Ligation	(2) C-section & Tubal Ligation	(3) Vasectomy	(4) Abortion	(5) C-section
Catholic	-0.141*** (0.0402)	-0.0726*** (0.0267)	-0.000721*** (0.000243)	-0.00154** (0.000627)	-0.0866 (0.111)
Dependent variable mean	0.455	0.299	0.000526	0.00400	1.697
R-squared	0.012	0.025	0.005	0.017	0.033
Observations	9,882	9,882	9,882	9,882	9,882
Number of Hospitals	972	972	972	972	972

Notes: All regressions include hospital and year fixed effects. "Dependent variable mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors are clustered at hospital level in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table D18: Not-for-Profit Hospitals Only

	(1) Tubal Ligation	(2) C-section & Tubal Ligation	(3) Vasectomy	(4) Abortion	(5) C-section
Catholic	-0.120** (0.0474)	-0.0573* (0.0296)	-0.000913*** (0.000319)	-0.000709 (0.000531)	-0.119 (0.143)
Dependent variable mean	0.433	0.285	0.000617	0.00389	1.675
R-squared	0.008	0.030	0.008	0.025	0.034
Observations	6,537	6,537	6,537	6,537	6,537
Number of Hospitals	692	692	692	692	692

Notes: All regressions include hospital and year fixed effects. "Dependent variable mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors are clustered at hospital level in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table D19: State-Year Fixed Effects

	(1) Tubal Ligation	(2) C-section & Tubal Ligation	(3) Vasectomy	(4) Abortion	(5) C-section
Catholic	-0.148*** (0.0432)	-0.0754*** (0.0275)	-0.000751*** (0.000248)	-0.00146** (0.000695)	-0.121 (0.123)
Dependent variable mean	0.456	0.300	0.000547	0.00548	1.704
R-squared	0.024	0.043	0.017	0.008	0.047
Observations	10,067	10,067	10,067	10,067	10,067
Number of Hospitals	1,002	1,002	1,002	1,002	1,002

*Notes: All regressions include hospital and state-year fixed effects. "Dependent variable mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors are clustered at hospital level in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$*

Table D20: Count Model, Controlling for Beds

	(1) Tubal Ligation	(2) C-section & Tubal Ligation	(3) Vasectomy	(4) Abortion	(5) C-section
Catholic	-29.08*** (8.497)	-17.44** (7.013)	-0.0989*** (0.0326)	-0.330 (0.324)	-13.04 (30.45)
Number of beds	0.0453*** (0.0161)	0.0845*** (0.0221)	0.000123 (0.000128)	0.00538 (0.00348)	0.581*** (0.127)
Mean	107.4	73.09	0.128	1.679	435.9
R-squared	0.035	0.133	0.008	0.014	0.223
Observations	10,067	10,067	10,067	10,067	10,067
Number of Hospitals	1,002	1,002	1,002	1,002	1,002

*Notes: Estimates are from a linear model. Dependent variable is the number of procedures performed in each hospital in each year. All regressions include hospital and year fixed effects. "Dependent variable mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors are clustered at hospital level in parentheses. \*\*  $p < 0.01$ , \*  $p < 0.05$ , \*  $p < 0.1$*



Table D21: Log Model, Controlling for Log Beds

	(1) Tubal Ligation	(2) C-section & Tubal Ligation	(3) Vasectomy	(4) Abortion	(5) C-section
Catholic	-0.577*** (0.169)	-0.415*** (0.124)	-0.165 (0.125)	-0.00865 (0.127)	-0.0772 (0.0714)
Ln(Number of Beds)	0.209*** (0.0604)	0.172*** (0.0466)	-0.104* (0.0632)	0.240*** (0.0828)	0.218*** (0.0464)
R-squared	0.032	0.139	0.056	0.039	0.147
Observations	8,193	7,569	920	2,898	8,182
Number of Hospitals	883	758	434	654	820

*Notes: Estimates are from a linear model. Dependent variable is the natural log of the number of procedures performed in each hospital in each year. All regressions include hospital and year fixed effects. "Dependent variable mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$*

Table D22: The Impact of Catholic Hospitals on Number of Hospitals in Healthcare System

	(1)	(2)	(3)	(4)
Catholic	-0.392 (0.407)	-1.506 (1.407)	0.494 (1.521)	-3.545* (1.874)
Observations	10,067	491	9,912	9,842
R-squared	0.0238	0.082	0.021	0.024
Number of Hospital	1,002	37	989	985
No Change	Y	N	Y	Y
To Catholic	Y	Y	Y	N
From Catholic	Y	Y	N	Y
Year FE	X	Y	Y	Y
Dependent variable mean	7.518	5.493	7.492	7.591

*Notes: All regressions include hospital and year fixed effects. "Dependent variable mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$*

Table D23: Falsification: Effect of Hospital System Changes on Tubal Ligation Rates

	(1)	(2)	(3)	(4)
Catholic				-0.141*** (0.0402)
Change System	0.0168 (0.0360)	0.0210 (0.0396)	0.0158 (0.0488)	0.0166 (0.0359)
Observations	10,067	9,576	8,302	10,067
R-squared	0.010	0.010	0.010	0.011
Number of Hospitals	1,002	965	835	1,002
No Change of Catholic Status		X	X	
Non-Catholic Only			X	

Notes: All regressions include hospital and year fixed effects. Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table D24: Testing for Determinants of Ownership Changes

	(1) To	(2) From
Tubal ligation rate	0.0101 (0.0119)	0.0596 (0.0910)
Black	-0.0549 (0.0376)	-0.0850 (0.187)
White	-0.0270 (0.0213)	-0.0779 (0.0888)
Hispanic	-0.0261 (0.0287)	-0.141 (0.137)
Medicaid	0.000521 (0.0401)	0.198 (0.177)
Private Insurance	0.0130 (0.0381)	0.00294 (0.166)
Self-Pay	0.0637 (0.0620)	0.141 (0.302)
Number of beds	3.97e-05 (6.60e-05)	0.000402 (0.000373)
Unemployment rate	-0.00291 (0.00246)	0.0170 (0.0124)
EC index	-0.0124* (0.00676)	-0.0350 (0.0390)
Total Payroll	-5.30e-10 (5.01e-10)	-4.38e-09 (4.06e-09)
Total Expenses	8.48e-11 (2.05e-10)	1.84e-09 (1.91e-09)
Total Births	7.90e-06 (6.94e-06)	-9.43e-06 (3.49e-05)
Total Admissions	-2.03e-06 (2.03e-06)	-1.18e-05 (1.47e-05)
FTE MDs	8.11e-05 (9.39e-05)	0.00177 (0.00127)
FTE RNs	8.06e-05 (5.28e-05)	-5.76e-07 (0.000345)
FTE Residents	3.15e-05 (8.86e-05)	-0.000295 (0.000929)
Constant	0.0604 (0.0416)	-0.0256 (0.170)
Observations	859	143
R-squared	0.022	0.154

Notes: This table is made up of a subsample defined as follows: for each hospital, use the earliest year of data in the sample. Column (1) is made up of the non-Catholic hospitals in the first year of data we have. The dependent variable is whether it ever becomes Catholic. Column (2) is made up of the Catholic hospitals in the first year of data we have. The dependent variable is whether it ever becomes non-Catholic. Standard errors in parentheses.

Appendix E: Goodman-Bacon (2018) Robustness Checks

As an additional layer of robustness checks we follow Goodman-Bacon (2018). This paper shows how the treatment effects resulting from a specification as the one in equation (1) are simply a weighted average of all the possible 2x2 difference-in-differences combinations that can be formed with the data. The author shows how these fixed effects estimator is a consistent estimator of a weighted version of the ATT if the treatment effects do not change over time and a generalized version of the common trends assumption holds. To compute the weights, the sample is divided in groups, where a group is defined as hospitals switching status in the same year (and an additional group is created with those that never change status). These weights will depend not only in the relative sizes of each of the groups, but also on the number of periods within the sample before and after treatment for each group.

To implement this battery of tests we require a balanced panel which leads us to generate four different subsamples within our main sample. In addition, we disregard any hospital that switched status more than once in the period as well as those that switched from Catholic to non-Catholic.

Table E1: Details of Subsamples. Balanced Panels

	<i>Subsample 1</i>	<i>Subsample 2</i>	<i>Subsample 3</i>	<i>Subsample 4</i>
<i>States</i>	<i>All</i>	<i>All w/o CA</i>	<i>All w/o CA AZ</i>	<i>All w/o CA AZ NJ</i>
<i>Period</i>	<i>2003-2009</i>	<i>1998-2010</i>	<i>1998-2011</i>	<i>1998-2013</i>
<i># of Hospitals</i>	<i>609</i>	<i>387</i>	<i>351</i>	<i>286</i>
<i># No Change in Status</i>	<i>606</i>	<i>381</i>	<i>346</i>	<i>279</i>
<i># Change to Catholic</i>	<i>3</i>	<i>6</i>	<i>5</i>	<i>7</i>
<i># Groups</i>	<i>3</i>	<i>3</i>	<i>3</i>	<i>5</i>
<i>Year of Change for First Group</i>	<i>2006</i>	<i>2000</i>	<i>2000</i>	<i>2000</i>

Table E2: Hospital Fixed Effects Estimates for Balanced Panels

	(1)	(2)	(3)	(4)	(5)
	To Catholic & No-Changers	'03-'09	No CA & <='10	No CA AZ & <='11	No CA AZ NJ
Catholic	-0.175*** (0.0629)	-0.199** (0.0896)	-0.120 (0.0890)	-0.223*** (0.0395)	-0.235*** (0.0541)
Observations	9,801	4,263	5,031	4,914	4,576
R-squared	0.011	0.012	0.014	0.016	0.024
Number of Hospitals	982	609	387	351	286
Dependent variable mean	0.459	0.540	0.457	0.442	0.450
No. of changers	17	3	6	5	7

*Notes: Column (1) is our main result from Table 3 in the paper (Table 3 Column 3). Columns 2-4 are four potential balanced panels contained in our main sample. All regressions include hospital FE. Robust standard errors in parentheses are clustered at the hospital level. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$*

**Part 1: Testing for VWCT (Variance Weighted Common Trends)**

We start by testing the variance weighted common trends assumption. To do so, we generate, for each group a weight as a treatment group and weight as a control group<sup>47</sup>. The fact that groups of switchers act as control groups arises naturally in this setting, in which different units are treated at different points in time, thus can both be used as treatment groups when they switch status and control groups when they don't. The relative importance of each group acting as a control or a treatment will define its net treatment weight, or in words, whether a group is a net treatment group or a control group. Finally, we test whether the pre-trends for the net treatment weighted version of the treatment group is different than those in the never treated group.

To implement this in our data, we generate a dummy variable  $B$  that takes value 1 if a group acts as a net treatment group (i.e. if its weight as a treatment group is greater than its weight as a control group). Then we regress the outcome variable pre-treatment on  $B$ , year dummies and its interaction with  $B$ , weighting each group by its net weight as a treatment group. The inclusion of the net weights allows us to control for the importance of each group in determining the fixed effect estimator and apply this same weighting to the pre-trend test. Our second specification, replace the year dummies with a time trend.

The results of this specifications can be seen in Table E3 and Table E4. We do not find any evidence of differential pre-trends for the treated units in comparison with the controls. All specifications show insignificant coefficients for the interaction of the year dummies with  $B$ , as well as for the interaction of the time trend with  $B$ .

---

<sup>47</sup> See Goodman-Bacon (2018) for a detailed description on how to compute this weights for each of the groups.

Table E3: Testing for Pre-trend. Year Dummies

	<i>Subsample 1</i>	<i>Subsample 2</i>	<i>Subsample 3</i>	<i>Subsample 4</i>
<i>B</i>	-0.062 (0.621)	0.146 (0.222)	0.139 (0.262)	0.175 (0.343)
1998		-	-	-
1999		-0.019 (0.027)	-0.020 (0.029)	-0.014 (0.034)
2003	-			
2004	0.173 (0.357)			
2005	0.001 (0.357)			
<i>Bx1998</i>		-0.012 (0.314)	-0.053 (0.370)	-0.001 (0.485)
<i>Bx1999</i>		-	-	-
<i>Bx2003</i>	0.085 (0.879)			
<i>Bx2004</i>	0.042 (0.879)			
<i>Bx2005</i>	-			
<i>Constant</i>	0.502*** (0.025)	0.413*** (0.019)	0.406*** (0.020)	0.422*** (0.024)
<i>Observations</i>	1827	774	702	572

Table E4: Testing for Pre-trend. Linear Trends

	<i>Subsample 1</i>	<i>Subsample 2</i>	<i>Subsample 3</i>	<i>Subsample 4</i>
<i>B</i>	0.023 (0.567)	0.158 (0.222)	0.139 (0.262)	0.175 (0.343)
<i>t</i>	0.000 (0.017)	-0.019 (0.027)	-0.020 (0.029)	-0.014 (0.034)
<i>Bxt</i>	-0.042 (0.439)	-0.012 (0.314)	-0.053 (0.370)	-0.001 (0.485)
<i>Constant</i>	0.508*** (0.023)	0.413*** (0.019)	0.406*** (0.020)	0.422*** (0.024)
<i>Observations</i>	1827	774	702	

Standard errors in parentheses  
 \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

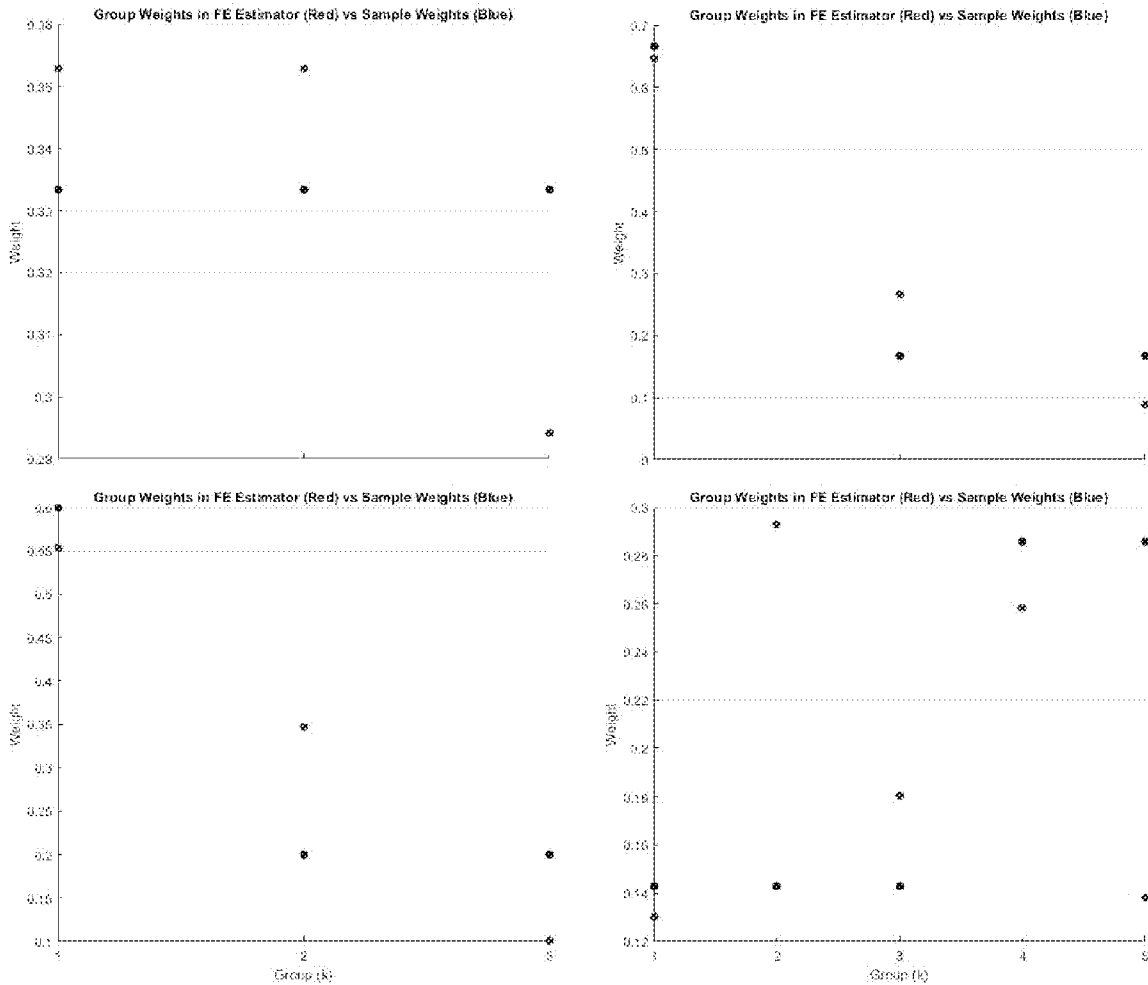
## Part 2: Explaining why TVTE would be an insignificant issue in our setting

In this setting an additional challenge to the validity of our results could arise if treatment effects vary over time (i.e. if the effect arises a few periods after treatment, or if it increases or decreases over the time). This is a consequence of the use of already treated units as controls for groups treated later in time. We don't see this as concern in our setting, since the magnitude of the bias introduced by the already treated units acting as controls is function of the relative group sizes. Since our group of never treated contains always more than 100 times the number of hospitals in any treated group the bias will be negligible. As an example, for our first subsample, 0.11% of the fixed effect is a result of comparing early vs late treatment units. This proportion never exceeds 1.1% (fourth subsample) and should be of a similar magnitude in our main specification of the paper.

**Part 3: How does the fixed effect estimator (VWATT) compares to other estimators (SWATT)**

While our previous test show that the fixed effects estimator in our main specification is consistent for the ATT, it is still interesting to understand how it aggregates all the 2x2 difference-in-differences. Figure E1 shows the implicit weights used by the FE estimator for each group and compares them with the sample weights, for each of our subsamples. The graph below shows that there are some clear differences between both pairs of weights.

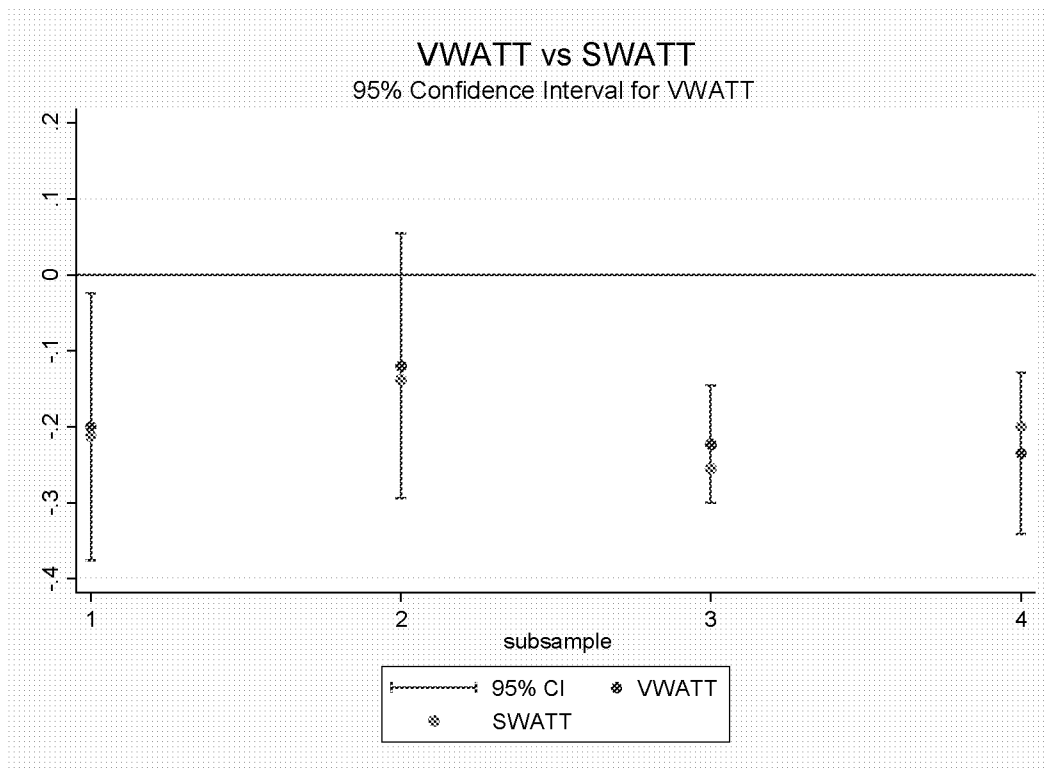
*Figure E1: VWATT Weights vs Sample Weights*



The graphs show the weights associated to each group's ATT under the fixed effect regression as in equation (1) and how they compared to the sample weights for each group in each of our 4 subsamples. See Goodman-Bacon (2018) for more details  
 Top left corner: Subsample 1. Top right corner: Subsample 2. Bottom left corner: Subsample 3. Bottom right corner: Subsample 4.

While not a problem per se, it could be that the weights used by the FE estimator is what is driving our main result, and a different weighting procedure would give us a completely different estimator. To analyze this idea we compare, for each subsample, the FE estimator to a different version in which sample weights are used to calculate the ATT. To do this, we calculate all the potential DiD for each of the groups vs the never treated group and aggregate them using the sample weights. Figure E2 presents the result of this exercise, where the red dots represent the estimator from a FE regression as in our main specification, and the blue dots are the sample weighted version of the estimator. We can see that both are very similar for all subsamples, providing further robustness to our main result of the paper.

Figure E2: VWATT vs SWATT



CI intervals calculated using robust standard errors.  
 ATT for each group calculated using only the never treated units as a control group.



## Appendix F: Repeat of All Results Using Three Denominator Options

Table F1: Tubal Ligations

	(1)	(2)	(3)	(4)	(5)
<b>Panel A: Actual Bed Data (Changes Annually)</b>					
Catholic	-0.139*** (0.0406)	-0.141*** (0.0402)	-0.151*** (0.0227)	-0.152*** (0.0508)	-0.117** (0.0496)
Mean	0.456	0.456	0.394	0.457	0.456
R-squared	0.001	0.011	0.141	0.011	0.010
<b>Panel B: Earliest Bed Data (Constant)</b>					
Catholic	-0.135*** (0.0443)	-0.131*** (0.0445)	-0.136*** (0.0238)	-0.119*** (0.0257)	-0.115*** (0.0248)
Mean	0.457	0.457	0.404	0.457	0.457
R-squared	0.005	0.026	0.096	0.025	0.023
<b>Panel C: Latest Bed Data (Constant)</b>					
Catholic	-0.142*** (0.0359)	-0.141*** (0.0362)	-0.155*** (0.0471)	-0.142*** (0.0277)	-0.112*** (0.0242)
Mean	0.459	0.459	0.401	0.459	0.458
R-squared	0.005	0.023	0.055	0.022	0.023
No Change	Y	Y	N	Y	Y
To Catholic	Y	Y	Y	Y	N
From Catholic	Y	Y	Y	N	Y
Year FE		Y	Y	Y	Y
Observations	10,067	10,067	491	9,912	9,842
Hospitals	1,002	1,002	37	989	985

Notes: All regressions include hospital fixed effects. "Mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors clustered at the hospital level in parentheses \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table F2: Vasectomy

	(1)	(2)	(3)	(4)	(5)
<b>Panel A: Actual Bed Data (Changes Annually)</b>					
Catholic	-0.000628** (0.000265)	-0.000729*** (0.000243)	-0.000774** (0.000304)	-0.00104*** (0.000387)	-0.000304 (0.000370)
Mean	0.000547	0.000547	0.000655	0.000552	0.000535
R-squared	0.001	0.005	0.043	0.006	0.005
<b>Panel B: Earliest Bed Data (Constant)</b>					
Catholic	-0.000591** (0.000240)	-0.000678*** (0.000221)	-0.000706*** (0.000270)	-0.000957*** (0.000361)	-0.000286 (0.000346)
Mean	0.000543	0.000543	0.000618	0.000548	0.000533
R-squared	0.001	0.006	0.044	0.006	0.005
<b>Panel C: Latest Bed Data (Constant)</b>					
Catholic	-0.000566** (0.000229)	-0.000660*** (0.000210)	-0.000702*** (0.000244)	-0.000936** (0.000396)	-0.000279 (0.000383)
Mean	0.000558	0.000558	0.000595	0.000563	0.000549
R-squared	0.000	0.005	0.052	0.006	0.005
No Change	Y	Y	N	Y	Y
To Catholic	Y	Y	Y	Y	N
From Catholic	Y	Y	Y	N	Y
Year FE		Y	Y	Y	Y
Observations	10,067	10,067	491	9,912	9,842
Hospitals	1,002	1,002	37	989	985

Notes: All regressions include hospital fixed effects. "Mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors clustered at the hospital level in parentheses \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table F3: Abortion

	(1)	(2)	(3)	(4)	(5)
<b>Panel A: Actual Bed Data (Changes Annually)</b>					
Catholic	-0.000952** (0.000394)	-0.00168** (0.000659)	-0.00103*** (0.000388)	5.98e-05 (0.00614)	-0.00343 (0.00601)
Mean	0.00548	0.00548	0.00197	0.00551	0.00553
R-squared	0.000	0.003	0.103	0.003	0.003
<b>Panel B: Earliest Bed Data (Constant)</b>					
Catholic	-0.000850** (0.000388)	-0.00144** (0.000653)	-0.000856** (0.000380)	0.000377 (0.00603)	-0.00324 (0.00591)
Mean	0.00534	0.00534	0.00190	0.00538	0.00539
R-squared	0.000	0.003	0.094	0.003	0.003
<b>Panel C: Latest Bed Data (Constant)</b>					
Catholic	-0.000489 (0.000586)	-0.00123 (0.000797)	-0.000498 (0.000503)	0.000388 (0.00618)	-0.00296 (0.00606)
Mean	0.00566	0.00566	0.00187	0.00570	0.00572
R-squared	0.000	0.004	0.075	0.004	0.004
No Change	Y	Y	N	Y	Y
To Catholic	Y	Y	Y	Y	N
From Catholic	Y	Y	Y	N	Y
Year FE		Y	Y	Y	Y
Observations	10,067	10,067	491	9,912	9,842
Hospitals	1,002	1,002	37	989	985

Notes: All regressions include hospital fixed effects. "Mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors clustered at the hospital level in parentheses \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table F4:C-section &amp; Tubal Ligation Elsewhere

	(1)	(2)	(3)	(4)	(5)
<b>Panel A: Actual Bed Data (Changes Annually)</b>					
Catholic	-0.000765* (0.000413)	-0.000691* (0.000412)	-0.000454 (0.000576)	-0.000568 (0.000717)	-0.000781 (0.000795)
Mean	0.000554	0.000554	0.000985	0.000552	0.000544
R-squared	0.000	0.019	0.170	0.019	0.017
<b>Panel B: Earliest Bed Data (Constant)</b>					
Catholic	-0.000780* (0.000432)	-0.000686 (0.000429)	-0.000456 (0.000612)	-0.000561 (0.000842)	-0.000784 (0.000934)
Mean	0.000598	0.000598	0.00102	0.000596	0.000588
R-squared	0.000	0.016	0.161	0.016	0.015
<b>Panel C: Latest Bed Data (Constant)</b>					
Catholic	-0.000668** (0.000328)	-0.000618* (0.000333)	-0.000368 (0.000492)	-0.000436 (0.000751)	-0.000787 (0.000833)
Mean	0.000550	0.000550	0.000878	0.000549	0.000542
R-squared	0.000	0.016	0.170	0.016	0.015
No Change	Y	Y	N	Y	Y
To Catholic	Y	Y	Y	Y	N
From Catholic	Y	Y	Y	N	Y
Year FE		Y	Y	Y	Y
Observations	5,957	5,957	170	5,880	5,873
Hospitals	856	856	21	845	847

Notes: All regressions include hospital fixed effects. Subsample is state-years with patient linking variables. "Mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors clustered at the hospital level in parentheses \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table F5: Miscarriage/Stillbirth

	(1)	(2)	(3)	(4)	(5)
<b>Panel A: Actual Bed Data (Changes Annually)</b>					
Catholic	-0.00200 (0.00652)	-0.00491 (0.00614)	-0.00683 (0.00473)	-0.0118 (0.0104)	0.0000346 (0.0102)
Mean	0.0732	0.0732	0.0592	0.0732	0.0732
R-squared	0.000	0.028	0.118	0.028	0.027
<b>Panel B: Earliest Bed Data (Constant)</b>					
Catholic	0.000542 (0.00645)	-0.00152 (0.00619)	-0.00330 (0.00467)	-0.00688 (0.00629)	0.00259 (0.00611)
Mean	0.0727	0.0727	0.0598	0.0727	0.0727
R-squared	0.000	0.049	0.084	0.049	0.049
<b>Panel C: Latest Bed Data (Constant)</b>					
Catholic	0.0110 (0.0188)	0.00851 (0.0184)	0.00615 (0.00943)	-0.0152** (0.00697)	0.0271*** (0.00697)
Mean	0.0744	0.0744	0.0604	0.0744	0.0744
R-squared	0.000	0.053	0.079	0.056	0.056
No Change	Y	Y	N	Y	Y
To Catholic	Y	Y	Y	Y	N
From Catholic	Y	Y	Y	N	Y
Year FE		Y	Y	Y	Y
Observations	10,067	10,067	491	9,912	9,842
Hospitals	1,002	1,002	37	989	985

Notes: All regressions include hospital fixed effects. "Mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors clustered at the hospital level in parentheses \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table F6: Miscarriage/Stillbirth with Complications

	(1)	(2)	(3)	(4)	(5)
<b>Panel A: Actual Bed Data (Changes Annually)</b>					
Catholic	-0.00401* (0.00207)	-0.00377* (0.00214)	-0.00438*** (0.00132)	-0.00325 (0.00373)	-0.00321 (0.00365)
Mean	0.0139	0.0139	0.0112	0.0139	0.0139
R-squared	0.000	0.007	0.063	0.006	0.007
<b>Panel B: Earliest Bed Data (Constant)</b>					
Catholic	-0.00346 (0.00229)	-0.00298 (0.00230)	-0.00360*** (0.00135)	-0.00239 (0.00199)	-0.00261 (0.00194)
Mean	0.0137	0.0137	0.0114	0.0137	0.0137
R-squared	0.001	0.012	0.046	0.012	0.013
<b>Panel C: Latest Bed Data (Constant)</b>					
Catholic	-0.00407 (0.00281)	-0.00369 (0.00287)	-0.00420* (0.00217)	-0.00503** (0.00238)	-0.000927 (0.00228)
Mean	0.0139	0.0139	0.0114	0.0139	0.0139
R-squared	0.001	0.008	0.038	0.009	0.009
No Change	Y	Y	N	Y	Y
To Catholic	Y	Y	Y	Y	N
From Catholic	Y	Y	Y	N	Y
Year FE		Y	Y	Y	Y
Observations	10,067	10,067	491	9,912	9,842
Hospitals	1,002	1,002	37	989	985

Notes: All regressions include hospital fixed effects. "Mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors clustered at the hospital level in parentheses \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table F7: Severe Maternal Morbidity

	(1)	(2)	(3)	(4)	(5)
<b>Panel A: Actual Bed Data (Changes Annually)</b>					
Catholic	-0.0109* (0.00632)	-0.00498 (0.00583)	-0.00730* (0.00372)	-0.0119 (0.00855)	0.00477 (0.00836)
Mean	0.0667	0.0667	0.0476	0.0667	0.0669
R-squared	0.000	0.091	0.156	0.091	0.092
<b>Panel B: Earliest Bed Data (Constant)</b>					
Catholic	-0.00849 (0.00872)	-0.00166 (0.00797)	-0.00229 (0.00519)	-0.00529 (0.00654)	0.00482 (0.00635)
Mean	0.0673	0.0673	0.0494	0.0673	0.0675
R-squared	0.000	0.176	0.158	0.176	0.178
<b>Panel C: Latest Bed Data (Constant)</b>					
Catholic	-0.0119 (0.00810)	-0.00554 (0.00807)	-0.00901 (0.00642)	-0.0162** (0.00642)	0.00860 (0.00610)
Mean	0.0670	0.0670	0.0481	0.0670	0.0672
R-squared	0.001	0.153	0.080	0.153	0.163
No Change	Y	Y	N	Y	Y
To Catholic	Y	Y	Y	Y	N
From Catholic	Y	Y	Y	N	Y
Year FE		Y	Y	Y	Y
Observations	10,067	10,067	491	9,912	9,842
Hospitals	1,002	1,002	37	989	985

Notes: All regressions include hospital fixed effects. "Mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors clustered at the hospital level in parentheses \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table F8:Hysterectomy Under Age 40

	(1)	(2)	(3)	(4)	(5)
<b>Panel A: Actual Bed Data (Changes Annually)</b>					
Catholic	-0.0236 (0.0276)	-0.0340 (0.0216)	-0.0472*** (0.0116)	-0.0529*** (0.0179)	-0.00605 (0.0173)
Mean	0.161	0.161	0.188	0.161	0.158
R-squared	0.000	0.095	0.296	0.094	0.089
<b>Panel B: Earliest Bed Data (Constant)</b>					
Catholic	-0.0167 (0.0263)	-0.0251 (0.0209)	-0.0352*** (0.0110)	-0.0308** (0.0145)	-0.00464 (0.0140)
Mean	0.164	0.164	0.193	0.164	0.162
R-squared	0.000	0.122	0.259	0.121	0.117
<b>Panel C: Latest Bed Data (Constant)</b>					
Catholic	-0.00736 (0.0215)	-0.0159 (0.0159)	-0.0265** (0.0119)	-0.0209 (0.0139)	-0.000125 (0.0133)
Mean	0.159	0.159	0.176	0.159	0.157
R-squared	0.000	0.125	0.224	0.124	0.122
No Change	Y	Y		Y	Y
To Catholic	Y	Y	Y	Y	
From Catholic	Y	Y	Y		Y
Year FE		Y	Y	Y	Y
Observations	10,067	10,067	491	9,912	9,842
Hospitals	1,002	1,002	37	989	985

Notes: All regressions include hospital fixed effects. "Mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors clustered at the hospital level in parentheses \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$



Appendix G: Heterogeneity

We stratify our primary result for tubal ligations across several different dimensions. Stratification by racial/ethnic groups and HHI are in the main body of the paper.

Data from the National Survey of Family Growth (NSFG), as presented in Bailey and Lindo (2018), suggest that the majority of tubal ligations are performed on older women. In Appendix Table G1, we find evidence of a larger impact of Catholic ownership on tubal ligations for women over the age of 40 (rate is reduced by 35%). We also stratify births and miscarriages/stillbirths with complications by age. We find a marginally significant decrease in the birth rate for women ages 30-39 (Appendix Table G2). The potential protective effect of Catholic ownership on miscarriage or stillbirths with complications appears to be driven by improvements for younger women (Appendix Table G3).

Table G1: Impact of Catholic Ownership on Tubal Ligations by Age

	(1)	(2)	(3)	(4)	(5)
	Overall	Ages 10-19	Ages 20-29	Ages 30-39	Ages 40+
Catholic	-0.141*** (0.0402)	-0.000227 (0.000261)	-0.0557*** (0.0182)	-0.0729*** (0.0207)	-0.0120*** (0.00346)
Observations	10,067	10,067	10,067F	10,067	10,067
R-squared	0.011	0.006	0.028	0.006	0.011
Number of Hospitals	1,002	1,002	1,002	1,002	1,002
To Catholic	Y	Y	Y	Y	Y
From Catholic	Y	Y	Y	Y	Y
Dependent Var Mean	0.456	0.000463	0.167	0.254	0.0346

*Notes: All regressions include hospital and year fixed effects. "Dependent variable mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$*

Table G2: Impact of Catholic Ownership on Births by Age

	(1)	(2)	(3)	(4)	(5)
	Overall	Ages 10-19	Ages 20-29	Ages 30-39	Ages 40+
Catholic	-0.437	-0.0210	-0.181	-0.220*	-0.0153
	(0.365)	(0.0482)	(0.202)	(0.130)	(0.00950)
Observations	10,067	10,067	10,067	10,067	10,067
R-squared	0.006	0.029	0.008	0.004	0.015
Number of Hospitals	1,002	1,002	1,002	1,002	1,002
To Catholic	Y	Y	Y	Y	Y
From Catholic	Y	Y	Y	Y	Y
Dependent Var. Mean	5.597	0.559	2.867	1.994	0.163

*Notes: All regressions include hospital and year fixed effects. "Dependent variable mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors clustered at hospital in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$*

Table G3: Impact of Catholic Ownership on Miscarriage/Stillbirth + Complications by Age

	(1)	(2)	(3)	(4)	(5)
	Overall	Ages 10-19	Ages 20-29	Ages 30-39	Ages 40+
Catholic	-0.00377*	0.000214	-0.00211*	-0.00165*	-0.000249
	(0.00214)	(0.000351)	(0.00121)	(0.000860)	(0.000246)
Observations	10,067	10,067	10,067	10,067	10,067
R-squared	0.007	0.007	0.005	0.004	0.004
Number of Hospitals	1,002	1,002	1,002	1,002	1,002
To Catholic	Y	Y	Y	Y	Y
From Catholic	Y	Y	Y	Y	Y
Dependent Var Mean	0.0139	0.00135	0.00618	0.00516	0.00103

*Notes: All regressions include hospital and year fixed effects. "Dependent Var Mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors clustered at hospital in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$*

Appendix Table G4 then stratifies the regression by insurance type. We also see comparable results for Medicaid and private insurance. The main difference is in Column (4) where we see a much larger decrease for those who do not have insurance, approaching 100%. It is also consistent with the results in Table 6 as black and Hispanic women receiving tubal ligations are more likely to be on Medicaid or self-paying than white women.

Table G4: Insurance Type Breakdown of Effect on Tubal Ligation Rate

	(1) Medicaid, Private, and Self Pay	(2) Medicaid	(3) Private	(4) Self-Pay
Catholic	-0.125*** (0.0372)	-0.0456** (0.0177)	-0.0660** (0.0290)	-0.0134** (0.00629)
Dependent variable mean:				
All non-Catholic hospitals	0.444	0.215	0.217	0.0115
Hospitals that switch when they aren't Catholic	0.370	0.168	0.191	0.0112
R-squared	0.011	0.016	0.016	0.012
Observations	10,067	10,067	10,067	10,067
Number of Hospitals	1,002	1,002	1,002	1,002

*Notes: All regressions include hospital and year fixed effects. Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$*

Appendix Table G5 looks at which type of Catholic affiliation has the most impact on our main results. Given that the three variables are highly correlated, we have also included a p-value for the joint significance of the three coefficients. The joint significance tests perfectly match our results above, with statistically significant effects for tubal ligations, vasectomies, and abortions, but not for C-sections. However, when looking at the different types of Catholic affiliation, Catholic ownership has a stronger and more statistically significant effect, especially for the tubal ligation rate.

Table G5: Type of Catholic Affiliation Breakdown of Effect on Tubal Ligation Rate

	(1) Tubal Ligation	(2) C-section & Tubal Ligation	(3) Vasectomy	(4) Abortion	(5) C-section
Catholic Hospital	0.105 (0.0770)	0.00893 (0.0515)	-0.000610 (0.000477)	-0.000432 (0.00118)	0.123 (0.155)
Catholic Ownership	-0.291*** (0.0953)	-0.122* (0.0720)	0.000726 (0.000588)	-0.00281* (0.00148)	-0.447** (0.195)
Catholic System	-0.00680 (0.0723)	0.0212 (0.0606)	-0.000911* (0.000489)	0.000710 (0.000981)	0.175 (0.204)
Joint p-value	0.000043***	0.0164**	0.0034***	0.0034***	0.146
Dependent variable mean	0.456	0.300	0.000547	0.00548	1.704
R-squared	0.012	0.025	0.006	0.003	0.033
Observations	10,067	10,067	10,067	10,067	10,067
Number of Hospitals	1,002	1,002	1,002	1,002	1,002

Notes: All regressions include hospital and year fixed effects. "Dependent variable mean" row refers to the mean for hospitals that are not Catholic in that year. Robust standard errors are clustered at hospital in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

# Exhibit 391

Health Services Research: *Review*

# Reproductive Health Care in Catholic Facilities

## A Scoping Review

*Nichole B. Thorne, BS, Taylor K. Soderborg, BA, Jacqueline J. Glover, PhD, Lilian Hoffecker, PhD, MLS, and Maryam Guiahi, MD, MSc*

**OBJECTIVE:** Given the rise in Catholic ownership of U.S. health care facilities, we aimed to examine reproductive health care provision and patient outcomes. We performed a scoping review, which maps the literature and considers inclusion of studies that are not specifically quantitative.

**DATA SOURCES:** We searched five databases (MEDLINE, EMBASE, Web of Science and Cochrane Library, ClinicalTrials.gov) from inception through August 2018 using terms related to reproductive health care and religion.

**METHODS OF STUDY SELECTION:** We screened 2,906 studies. Articles were included if in English, included primary research data, and referenced U.S.-based Catholic facilities. We reviewed the reference lists of included articles. We excluded articles that addressed the relationship of patient or health care provider religion to provision of reproductive services, described reproductive health care services in non-Catholic facilities, or reported legal cases or concerns. Two independent reviewers screened all citations, a third reviewer resolved differences, and all three reviewers categorized included citations.

**TABULATION, INTEGRATION, AND RESULTS:** We included 27 studies. Investigators most commonly

focused on the provision of emergency contraception (n=9) or other contraceptive and sterilization methods (n=7); few focused on a range of family planning methods (n=3), natural family planning (n=2), ectopic pregnancy management (n=2), abortion care (n=2), miscarriage management (n=1), and infertility care (n=1). The most common study designs were cross-sectional (18/27 [67%]) and qualitative investigations (6/27 [22%]). Common data collection approaches included surveys, interviews, and mystery caller designs. Two studies involved authors with Catholic hospital affiliations and one of these reported patient outcomes; no other patient outcome reports were found. Studies cited restrictions to care in comparison with non-Catholic settings and multisite studies demonstrated variable rates of provision of reproductive health services across Catholic sites.

**CONCLUSIONS:** Despite the significant proportion and recent growth of Catholic health care within the U.S. health care sector, little is known about reproductive health outcomes in these settings and in comparison with other settings.

(*Obstet Gynecol* 2019;133:105–15)

DOI: 10.1097/AOG.0000000000003029

*From the University of Colorado School of Medicine, and the Center for Bioethics and Humanities and Health Sciences Library, University of Colorado Anschutz Medical Center, Aurora, Colorado.*

*Dr. Guiahi's time was supported by the Society of Family Planning Junior Investigator Career Grant SFPRF10-111.*

*Each author has confirmed compliance with the journal's requirements for authorship.*

*Corresponding author: Maryam Guiahi, MD, MSc, 12631 E 17th Avenue, Mailstop B192-2, Aurora, CO 80045; email: Maryam.guiahi@ucdenver.edu.*

### **Financial Disclosure**

*The authors did not report any potential conflicts of interest.*

© 2018 by the American College of Obstetricians and Gynecologists. Published by Wolters Kluwer Health, Inc. All rights reserved.

ISSN: 0029-7844/19

Many women receive care within Catholic health care facilities; in 2016, 14.5% of U.S. hospitals were Catholic-owned, accounting for one in six acute hospital beds,<sup>1,2</sup> and 349 of the 654 Catholic hospitals had obstetric services, accounting for more than 529,000 deliveries.<sup>2</sup> Health care providers at Catholic facilities are expected to adhere to the *Ethical and Religious Directives for Catholic Health Care Services* (hereafter referred to as “the directives”).<sup>3</sup> These directives emphasize the sanctity of marriage between a man and a woman, allude to the moral imperative that intercourse involve both “love-giving” and “life-giving” intentions,<sup>4</sup> and state their commitment to



human life beginning at conception. Thus, family planning methods cannot inhibit the “life-giving” aspect and infertility techniques cannot inhibit the “love-giving” aspect of the marriage or sex act. Reproductive health care provision is acceptable only to treat other medical conditions according to the “double effect principle” (eg, noncontraceptive benefits).

Recent attention has been paid to how religious restrictions affect patient care.<sup>5,6</sup> In this review, our primary outcome was to understand reproductive health care provision in Catholic facilities. Secondarily, we aimed to understand the contexts in which provision occurs and patient outcomes. We conducted a scoping review, rather than a systematic review, because it provides a means to mapping the literature with respect to a broad question.<sup>7</sup> Specifically, it provides the opportunity to include studies that are not specifically quantitative (eg, qualitative) or based on a rigid set of a priori factors, recognizing that any well-designed research studies are potential sources of credible evidence.<sup>7</sup>

## SOURCES

We used the methodologic framework for scoping reviews as outlined by the Joanna Briggs Institute, Arksey and O’Malley, and Levac et al.<sup>7-9</sup> Our specific protocol was developed by the research team, which includes three clinicians (N.B.T., T.K.S., M.G.), a research librarian who has experience with systematic reviews (L.H.), and a bioethicist (J.J.G.). The Colorado multiple institutional review board deemed this project to be nonhuman subjects research, because it did not require obtaining information about living individuals.

We performed the initial search in November 2017 using four online databases: MEDLINE (Ovid), EMBASE (Embase.com), Web of Science (Clarivate), and the Cochrane Library (Wiley). In August 2018, we performed a final update of these databases and also searched ClinicalTrials.gov. With input from study team members, a research librarian (L.H.) devised the search strategy that included applicable text words, terms, and subject headings related to religion and reproductive health care services (see Box 1 for the full Ovid Medline search strategy). No year limits were applied. After identification of articles that met study inclusion, we reviewed all citations to ensure that we did not miss any other relevant articles.

## STUDY SELECTION

We searched for articles that focused on the provision of any reproductive health care services within Catholic health care facilities and patient outcomes.

### Box 1. Ovid MEDLINE Search Strategy

1. Catholic\*.mp.
2. religious.mp.
3. religion.mp.
4. faith-based.mp.
5. Catholicism/
6. Hospitals, Religious/
7. religion/
8. buddhism/
9. exp christianity/
10. hinduism/
11. islam/
12. judaism/
13. exp "religion and medicine"/
14. or/1-13
15. (Reproductive adj3 health\*).mp.
16. contracepti\*.mp.
17. (medroxyprogesterone adj acetate).mp.
18. DMPA.mp.
19. miscarriage\*.mp.
20. sterilization.mp.
21. (tubal adj1 ligation).mp.
22. abortion\*.mp.
23. (family adj1 plan\*).mp.
24. (reproductive adj3 medicine).mp.
25. ectopic.mp.
26. (calendar adj1 method\*).mp.
27. (creighton adj1 method\*).mp.
28. (billings adj1 method\*).mp.
29. exp Reproductive Health Services/
30. abortion, induced/
31. exp gynecologic surgical procedures/
32. exp sterilization, reproductive/
33. exp "Reproductive Control Agents"/
34. exp "Contraception"/
35. or/24-34
36. 14 and 35
37. Hospital\*.mp.
38. (health adj2 services).mp.
39. (healthcare adj1 service\*).mp.
40. (healthcare adj1 system\*).mp.
41. (health adj1 system\*).mp.
42. exp "Delivery of Health Care"/
43. exp Hospitals/
44. "Health Services Accessibility"/
45. or/37-44
46. 14 and 35 and 45
47. remove duplicates from 46
48. limit 47 to english language

We used the following inclusion criteria: 1) articles must reference Catholic hospital or health care facility affiliation; 2) articles must involve evidence of provision or nonprovision of any reproductive health care service, which includes any type of family planning service (eg, natural family planning, contraception, sterilization, or abortion), miscarriage management, ectopic pregnancy management, and infertility management; 3) articles must include



primary research findings, as opposed to editorials, commentaries, or news stories; 4) articles must be in relation to U.S.-based facilities; and 5) articles must be published in English. We excluded articles that addressed the relationship of patient or health care provider religion to provision of reproductive services, described reproductive health care services in non-Catholic facilities, or reported legal cases or concerns.

We uploaded the abstracts and titles of identified studies into the online systematic review software Covidence. To reduce biases related to study selection, two researchers (N.B.T., T.K.S.) independently reviewed each abstract and title for study inclusion. If researchers could not determine the relevance of a study based on review of its title or abstract, the full text was obtained and reviewed. Any discrepancies that occurred between the two researchers about relevance of articles were resolved in consultation with a third reviewer (M.G.). After screening completion, these three investigators independently reviewed potentially relevant full-text articles and then met to reach consensus about final inclusion. We extracted the following variables from included articles: authorship, including whether they were affiliated with a Catholic institution, year of publication, study design, type of reproductive service addressed, study participants, respondent rate, sample size, and main finding.

## RESULTS

The flow diagram in Figure 1 shows the search retrieval. We identified 3,910 potential titles and abstracts. After removal of duplicates, news pieces, editorials, commentaries, and studies performed outside of the United States, we uploaded the remaining 2,906 records into Covidence. Screening revealed 40 potential records for which we excluded three that we could not locate the full text and an additional five that did not meet inclusion criteria. One record was identified outside of the database search through citation review. We ultimately deemed 27 articles as appropriate for inclusion, which included 24 full-text articles and three abstracts.

Table 1 demonstrates study characteristics. The most common design was cross-sectional (67% [n=18]): 10 of these involved health care provider or hospital administrator surveys<sup>10-18</sup> (Pereira S. Combined hormone pills: physician practice patterns in two Catholic affiliated community hospitals [abstract]. *Obstet Gynecol* 2017;129:59S), seven were mystery caller investigations<sup>19-24</sup> (Delamater LE, Takimoto SM, Guiahi M, Goldman KN. Are women in

same-sex relationships offered fertility services by Catholic-affiliated clinics? A mystery caller study [abstract]. *Fertil Steril* 2017;108:e115), and one was a website review (Kuder M, Sheeder J, Guiahi M. Do hospital web sites describe available and institutionally restricted family planning options? [abstract]. *Obstet Gynecol* 2015;125:63S). An additional six studies (22%) were qualitative analyses of interviews of physicians who work at or have worked at Catholic facilities<sup>25-30</sup> and the remaining three (11%) were retrospective studies.<sup>31-33</sup>

Investigators most commonly focused on the provision of emergency contraception (n=9)<sup>10-12,18-21,23,24</sup> or other contraceptive and sterilization methods (n=7)<sup>13,14,25,31,32</sup> (Pereira S. *Obstet Gynecol* 2017;129:59S; Kuder M, et al. *Obstet Gynecol* 2015;125:63S). Three studies examined natural family planning services<sup>15,26</sup> (Kuder M, et al. *Obstet Gynecol* 2015;125:63S), three covered a number of family planning methods,<sup>22,27,33</sup> and the remaining studies covered ectopic pregnancy management (n=2),<sup>16,28</sup> abortion (n=2),<sup>17,29</sup> miscarriage (n=1),<sup>30</sup> and infertility (n=1) (Delamater LE, et al. *Fertil Steril* 2017;108:e115).

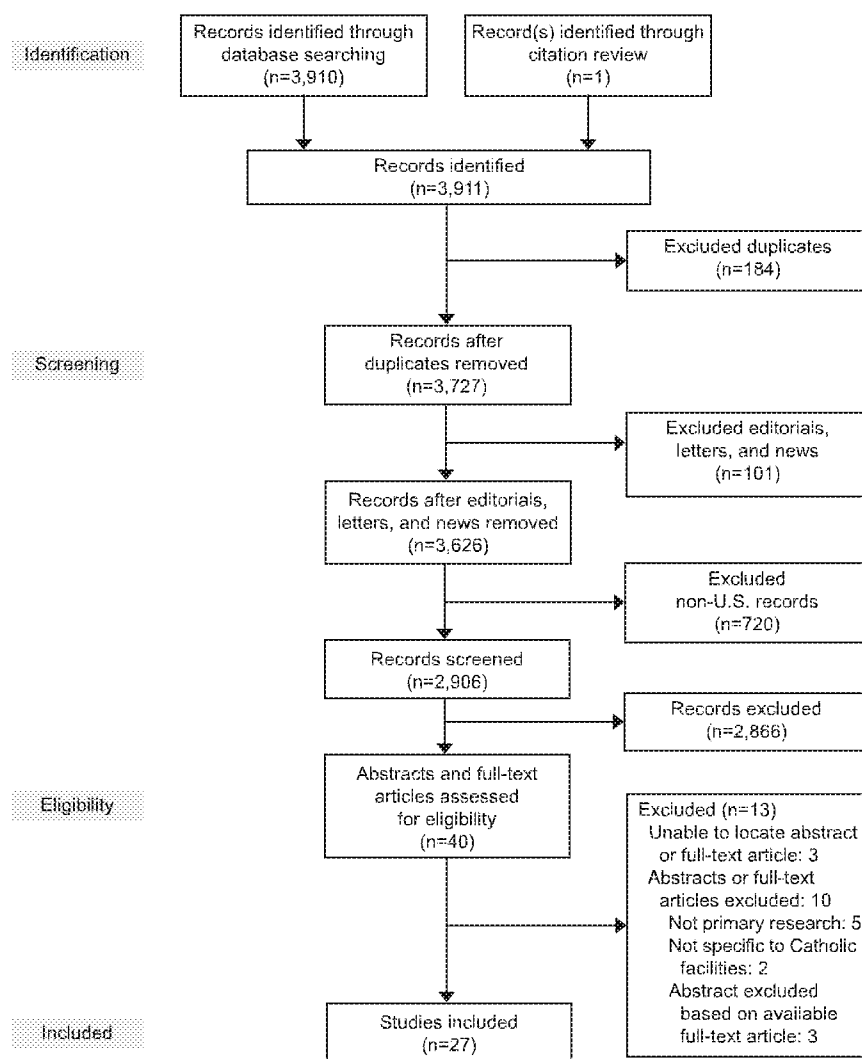
Study participants were primarily physicians (44%)<sup>10,11,13,14,16,17,25,26,28-30</sup> (Pereira S. *Obstet Gynecol* 2017;129:59S) and emergency department staff (26%).<sup>12,18-21,23,24</sup> Among the 12 studies that involved physicians, the stated specialties were obstetrics and gynecology (n=10), family medicine (n=3), internal medicine (n=2), and emergency medicine (n=1). Two of the studies involved investigators that were affiliated with Catholic facilities,<sup>15,31</sup> one was of unknown affiliation,<sup>14</sup> and the remainder (n=24 [88.9%]) were investigators affiliated with non-Catholic sites.

Only three studies specifically addressed the provision of natural family planning, the only contraceptive method deemed acceptable by the directives. One survey conducted in 1964 reported that natural family planning was the only method offered at Catholic facilities.<sup>26</sup> Another demonstrated that 35.2% of Catholic hospitals provide a natural family planning education program.<sup>15</sup> A website review found that 23.1% of Catholic hospitals describe natural family planning as an available method (Kuder M, et al. *Obstet Gynecol* 2015;125:63S).

Several health care provider reports and surveys demonstrated that many Catholic facilities do not provide family planning methods or are less likely to when compared with non-Catholic facilities, especially with respect to emergency contraception and abortion. A mystery caller survey of 597 Catholic hospitals and 615 non-Catholic hospitals found that







**Fig. 1.** Flow diagram of study selection.

Thorne. *Catholic Health Care Scoping Review. Obstet Gynecol* 2019.

54.9% of Catholic hospitals do not dispense emergency contraception in any cases compared with 42.2% of non-Catholic hospitals.<sup>21</sup> Some highlighted that emergency contraception counseling was permissible in cases of sexual assault; however, this was not always an acceptable exception.<sup>10,20,21,24</sup> Some Catholic institution representatives reported there were policies in place that prohibited discussion of emergency contraception with rape victims.<sup>12</sup>

A national survey demonstrated that less than 2% of Catholic-affiliated obstetrics and gynecology clinics offered abortion.<sup>22</sup> Compared with health care providers in non-Catholic facilities, those in Catholic hospitals were less likely to provide patients with routine abortion referrals than health care providers at non-religiously affiliated hospitals.<sup>17</sup> Health care providers in Catholic facilities also expressed greater difficulty providing referrals for abortion compared with other

prohibited services (eg, tubal ligation); furthermore, some physicians reported hospital authorities actively discouraging referrals and keeping referrals hidden.<sup>29</sup>

Although studies often highlighted that Catholic hospitals did not provide services, many also demonstrated that provision was not completely prohibited. For example, a study conducted in 1975 reported that 60% of U.S. Catholic hospitals offered some form of contraception, most commonly instruction in the rhythm method (38%) followed by the pill (17%).<sup>14</sup> A more recent study performed between 2014 and 2016 found that 95% of obstetrics and gynecology clinics affiliated with Catholic hospitals offered appointments for birth control and that many were also willing to provide intrauterine device (68%) or tubal ligation (58%) appointments.<sup>22</sup> An analysis of sterilizations using inpatient discharge data demonstrated that 48% of Catholic hospitals had performed this



**Table 1. Study Characteristics**

Title (Year of Publication)	Author(s)	Study Design	Type of Reproductive Service Addressed	Study Participants	Sample Size	Key Finding
Fertility control in hospitals with residencies in obstetrics and gynecology: an exploratory study (1966)	Eliot JW, Meier G	Qualitative interviews	Natural family planning	Obstetrics–gynecology physicians	20 Catholic and non-Catholic U.S. hospitals with obstetrics–gynecology residencies	Rhythm method was the only family planning method offered in Catholic facilities
Survey discloses NFP practices, preferences in U.S. Catholic hospitals (1982)*	Martin CM, Walker WR	Cross-sectional (mailed questionnaire)	Natural family planning	Hospital administrators	79.5% of 633 Catholic hospitals contacted	35.2% provide natural family planning education programs
Do hospital web sites describe available and institutionally restricted family planning options? (2015)	Kuder M, Sheeder J, Guiahi M	Cross-sectional (website review)	Natural family planning, contraception	Hospital websites	39 Catholic hospitals, 39 nonaffiliated hospitals	Among Catholic hospital websites, 23.1% describe offering natural family planning and 13% describe offering at least one form of contraception
Changing depot medroxyprogesterone acetate access at a faith-based institution (2011)*	Guiahi M, McNulty M, Garbe G, Edwards S, Kenton K	Historical cohort study	Contraception	Postpartum patients	258 patients within a Catholic hospital	12-mo repeat pregnancy rates were lower when immediate postpartum injectable contraception was available vs after an institutional restriction was reinforced (OR 0.27, 95% CI 0.10–0.2)
Combined hormone pills: physician practice patterns in two Catholic affiliated community hospitals (2017)	Pereira S	Cross-sectional (mailed questionnaire)	Contraception	Internal medicine, obstetrics–gynecology, family medicine physicians	45 physicians at Catholic-affiliated hospitals	64% prescribed combined hormone pills
Sterilization and contraceptive services in Catholic hospitals (1979)	O’Lane JM	Cross-sectional survey (mailed questionnaire)	Contraception, sterilization	Obstetrics–gynecology physicians	56.7% of 598 Catholic hospitals contacted	60% offer contraception; rhythm method most common; 20% permit medically indicated sterilization
Six in 10 U.S. Catholic hospitals provide family planning: one in five offers medical sterilization (1979)	Anonymous	Cross-sectional (mailed questionnaire)	Contraception, sterilization	Obstetrics–gynecology physicians	57.7% of 589 Catholic hospitals contacted	60% offer contraception; 38% provide instruction on the rhythm method, 17% provide the pill, 10% provide the diaphragm, 7% provide the IUD, 12% provide all methods; 20% provide sterilizations

(continued)



**Table 1. Study Characteristics (continued)**

Title (Year of Publication)	Author(s)	Study Design	Type of Reproductive Service Addressed	Study Participants	Sample Size	Key Finding
Divergent practices among Catholic hospitals in provision of direct sterilization (2013)	Hapenny S	Retrospective review of discharge data	Sterilization	Hospital discharge data	1,734 hospitals, including 239 Catholic hospitals, 176 of which provided obstetrics services	48% of Catholic hospitals provided direct sterilization
Tubal ligation in Catholic hospitals: a qualitative study of ob-gyns' experiences (2014)	Stulberg DB, Hoffman Y, Dahlquist IH, Freedman LR	Qualitative interviews	Sterilization	Obstetrics–gynecology physicians	31 obstetrics–gynecology physicians, including 27 with Catholic hospital experiences	Physicians disagreed with prohibition of sterilizations
Emergency contraception and Catholic hospitals (1999)	Bucar L, Nolan D	Cross-sectional (mystery caller survey)	Emergency contraception	Emergency department staff	589 Catholic hospital emergency departments	482/589 (82%) did not provide emergency contraception, even for rape
Informed consent for emergency contraception: variability in hospital care of rape victims (2000)	Smugar SS, Spina BJ, Merz JF	Cross-sectional (telephone survey)	Emergency contraception	Emergency department staff	74% of 58 large urban hospitals contacted; includes 70% of 40 contacted Catholic hospitals	Some Catholic hospitals have policies that prohibit discussion and prescription of emergency contraception in cases of rape
Contraceptive emergency: Catholic hospitals overwhelmingly refuse to provide emergency contraception (2003)	Nunn A, Miller K, Lapert H, Ellertson C	Cross-sectional (mystery caller survey)	Emergency contraception	Emergency department staff	597 Catholic hospitals	5% provide emergency contraception in any circumstance; 23% provide emergency contraception in rape cases
Under-use of emergency contraception for victims of sexual assault (2004)	Patel A, Simons R, Piotrowski ZH, Shulman L, Petraitis C	Cross-sectional (telephone survey)	Emergency contraception	Emergency department staff	75.8% of 165 contacted hospitals; 73.9% of 23 contacted Catholic hospitals	Decreased emergency contraception counseling in Catholic vs non-Catholic facilities (5.9% vs 47.2%, $P=.003$ )
Emergency contraception in emergency departments in Oregon, 2003 (2005)	Rosenberg KD, Demunter JK, Liu J	Cross-sectional (telephone survey)	Emergency contraception	Obstetrics–gynecology physicians in emergency departments	94.7% of 57 emergency departments contacted	Decreased emergency contraception provision in Catholic vs non-Catholic facilities (36.4% vs 65.6%, $P=.05$ ); Catholic and non-Catholic hospitals were equally likely to provide emergency contraception in cases of rape

(continued)



**Table 1. Study Characteristics (continued)**

Title (Year of Publication)	Author(s)	Study Design	Type of Reproductive Service Addressed	Study Participants	Sample Size	Key Finding
Availability of emergency contraception in Massachusetts emergency departments (2005)	Temin E, Coles T, Feldman JA, Mehta SD	Cross-sectional (mystery caller survey)	Emergency contraception	Emergency department staff	86% of 288 nurses contacted, 3.5% of 288 physicians contacted, 10.4% of 288 clerks contacted, within 72 emergency departments, 9 of which are located in Catholic hospitals	Decreased emergency contraception provision for patients in Catholic vs non-Catholic facilities in multiple scenarios (11% vs 83%, $P=.001$ )
Accessibility of emergency contraception in California's Catholic hospitals (2005)	Polis C, Schaffer K, Harrison T	Cross-sectional (mystery caller survey)	Emergency contraception	Emergency department staff	44 Catholic hospitals	66% did not provide emergency contraception
Availability of emergency contraception: a survey of hospital emergency department staff (2005)	Harrison T	Cross-sectional (mystery caller survey)	Emergency contraception	Emergency department staff	597/597 Catholic hospitals, 615/628 non-Catholic hospitals responded	Catholic facilities less likely to provide emergency contraception for any reason (54.9%) compared to non-Catholic facilities (42.2%), $P$ value not reported.
Hospital religious affiliation and emergency contraceptive prescribing practices (2006)	Rubin SE, Grumet S, Prine L	Cross-sectional (written survey)	Emergency contraception	Family medicine physicians	81% of 93 nonreligiously affiliated physicians, 95% of 80 religiously affiliated physicians	Decreased emergency contraception provision in Catholic vs non-Catholic facilities in multiple scenarios (10.4% vs 41.7%, $P<.05$ )
The implications of affiliations between Catholic and non-Catholic health care organizations for availability of reproductive health services (1999)	Weisman CS, Khoury AJ, Cassirer C, Sharpe VA, Morlock LL	Retrospective review of case studies	Variety of family planning methods	Case studies	4 case studies	Contraception availability, sterilization, and fertility treatment did not change as a result of affiliations between Catholic and non-Catholic institutions; provision of abortion was most likely to be discontinued after mergers

(continued)



**Table 1. Study Characteristics (continued)**

Title (Year of Publication)	Author(s)	Study Design	Type of Reproductive Service Addressed	Study Participants	Sample Size	Key Finding
Impact of Catholic hospital affiliation during obstetrics and gynecology residency on the provision of family planning (2017)	Guiahi M, Hoover J, Swartz M, Teal S	Qualitative interviews	Variety of family planning methods	Obstetrics–gynecology physicians	48.3% of 31 physicians who trained at Catholic-affiliated residency programs	Former resident physicians reported dissatisfaction with family planning training and delayed competency in this area
What are women told when requesting family planning services at clinics associated with Catholic hospitals? A mystery caller study (2017)	Guiahi M, Teal SB, Swartz M, Huynh S, Schiller G, Sheeder J	Cross-sectional (mystery caller survey)	Variety of family planning methods	Obstetrics–gynecology patient care coordinators	144 Catholic-affiliated clinics	95% offered appointments for birth control; 68% for copper IUD, 58% for tubal ligation; 2% for abortion
Do religious restrictions influence ectopic pregnancy management? A national qualitative study (2011)	Foster AM, Dennis A, Smith F	Qualitative interviews	Ectopic pregnancy	Obstetrics–gynecology and emergency physicians	24 physicians including 18 physicians from 13 Catholic sites	Three Catholic facilities do not offer methotrexate; unnecessary testing was required to document nonviability before treating ectopic pregnancies
Obstetrician–gynecologists, religious institutions, and conflicts regarding patient-care policies (2012)	Stulberg DB, Dude AM, Dahlquist I, Curlin FA	Cross-sectional (mailed questionnaire)	Ectopic pregnancy	Obstetrics–gynecology physicians	66% of 1,800 surveys sent; 13% from Catholic-affiliated institutions, 9% from other religiously affiliated institutions, 78% from nonreligiously affiliated institutions	52% of physicians at Catholic institutions report conflicts with their institutions based on religiously based policies (aOR 8.7, 95% CI 1.7–46.2)
Referrals for services prohibited in Catholic health care facilities (2016)	Stulberg DB, Jackson RA, Freedman LR	Qualitative interviews	Abortion	Obstetrics–gynecology physicians	27 physicians who currently work or previously worked in Catholic facilities	Within Catholic facilities, hospital authorities actively discouraged abortion referrals, referrals were sometimes hidden by health care providers

*(continued)*

**Table 1. Study Characteristics (continued)**

Title (Year of Publication)	Author(s)	Study Design	Type of Reproductive Service Addressed	Study Participants	Sample Size	Key Finding
Pregnancy options counseling and abortion referrals among U.S. primary care physicians: results from a national survey (2017)	Holt K, Janiak E, McComick MC, Lieberman E, Dehlendorf C, Kajepeta S, Caglia JM, Langer A	Cross-sectional (mailed questionnaire)	Abortion	General, family medicine, internal medicine physicians	29% of 3,000 physicians contacted; 11% from Catholic-affiliated facilities, 8% from other religiously affiliated facilities, 81% from nonreligiously affiliated facilities	Less abortion referrals offered at Catholic vs non-Catholic (OR 0.27, 95% CI 0.11–0.66); no difference in routine abortion dissuasion
When there's a heartbeat: miscarriage management in Catholic-owned hospitals (2008)	Freedman, LR, Landy U, Steinauer J	Qualitative interviews	Miscarriage	Obstetrics–gynecology physicians	6 physicians who worked in Catholic-affiliated institutions	Physicians report delays in medically indicated abortions as a result of hospital ethics committees and instances of circumventing ethics committee decisions
Are women in same-sex relationships offered fertility services by Catholic affiliated clinics? A mystery caller study (2017)	Delamater LE, Takimoto SM, Guiahi M, Goldman KN	Cross-sectional (mystery caller survey)	Infertility	Obstetrics–gynecology patient care coordinators	142 Catholic-affiliated clinics	81.7% offer ovulation induction as infertility care and Catholic affiliation was a rare reason for refusal, even for a same-sex caller

\* At least one author affiliated with a Catholic institution.

service with variable rates across institutions.<sup>32</sup> Several qualitative investigations highlighted the use of “workarounds” or other strategies to provide services that were generally otherwise prohibited.<sup>25,27,29</sup> With respect to mergers between Catholic institutions and nonreligiously affiliated institutions, a 1999 report cited that abortion services were usually limited after mergers, but that continued access to other reproductive services generally occurred.<sup>33</sup>

Surveys and qualitative studies demonstrated that physicians often reported conflict with their hospitals’ policies.<sup>16,25,27–30</sup> Many voiced concerns over how restrictions limited effective care in relation to ectopic pregnancy management,<sup>16,28</sup> provision of tubal ligations for medically complicated patients,<sup>25</sup> and miscarriage management.<sup>30</sup> Obstetrics and gynecology graduates from residency programs at Catholic hospitals reported dissatisfaction with their family planning training based on restrictions to service provision and

cited the inability to perform several family planning procedures on graduation despite expectations to achieve competency.<sup>27</sup>

## DISCUSSION

We set out to elucidate whether reproductive health care services are provided in Catholic settings and, if so, in what contexts. Most studies highlighted limited provision of reproductive services, reflecting adherence to the directives. Multisite studies also highlighted that rates of provision varied, especially by type of service, reflecting nonadherence to the directives. A limited number compared access to non-Catholic settings and often found that access to reproductive services at non-Catholic facilities was not ubiquitous. Because additional barriers to reproductive health care service provision exist, future studies should provide direct comparisons to elicit confounding factors.



The most common study designs included cross-sectional and qualitative investigations often using surveys, interviews, and “mystery caller” approaches. These approaches provide insights about actual implementation of reproductive provision rather than echoing stated policies. A comprehensive understanding of service provision, however, is lacking. Few studies commented on the provision of contraceptive methods that require onsite administration (eg, intrauterine devices), which is a potential barrier to provision in Catholic-owned facilities.<sup>22,31</sup> One historical cohort study from a Catholic hospital found that after a restriction to the provision of injectable contraception during the immediate postpartum period occurred, 12-month rates of short interval pregnancies increased, particularly for young minority women.<sup>31</sup> More research is needed to understand whether religious restrictions disproportionately affect marginalized groups, particularly those in conflict with the views of the Church (eg, same-sex couples, transgendered individuals, gestational surrogates).

Despite the significant contributions that Catholic facilities play within the U.S. health care system, we found a relatively low number of studies relevant to our broad topic (n=27). A minority of researchers (n=2) were from within Catholic health care settings,<sup>15,31</sup> used data derived from Catholic health care settings (n=2),<sup>31,32</sup> and reported patient outcomes (n=1).<sup>31</sup> Many reasons may exist for this paucity of data. First, some may agree with the restrictions and find any comparison with care within non-Catholic settings to be morally irrelevant. Researchers within these institutions may experience or worry about employment violations if their research exposes any forms of nonadherence to the directives or demonstrates poor health outcomes compared with non-Catholic settings. Investigators from both within and outside of these institutions may have trouble gaining approvals based on institutional priorities; a prior study related to Catholic health care reported that the investigators were unable to gain approval for survey dissemination within a Catholic hospital.<sup>34</sup> Such concerns or rejections highlight an ethical conundrum; how can the effect of religious restrictions on health care be understood if barriers to studying these implications exist?

This scoping review provides insight about reproductive health care provision within Catholic health care institutions and identifies knowledge and research gaps. Our review did not include individual physician characteristics and behaviors, which may be a contributing factor to who works or chooses to work in a Catholic facility and their associated practices. It

is also possible that the available literature is biased in nature based on the small number of reports, that most of the empirical findings were based on subjective measures (eg, interviews) susceptible to several biases (eg, respondent), and that 10 of the reports (37%) were authored by one of three authors (Freedman, Guaihi, Stulberg). There also are potential biases with respect to articles we were unable to locate. Because we wanted to focus on provision of reproductive health care and related outcomes, we intentionally did not include reports of legal cases or concerns. We recognize that this omission leaves out concerns that have been expressed by both proponents and opponents of religious institutional health care.

Reproductive services are integral to the emotional and physical well-being of women and have vast effects on a woman’s physical and economic well-being.<sup>35,36</sup> As Catholic health care services continue and expand within the U.S. health care market, so does the need for a better understanding of patient outcomes. Although many may assume that institutional restrictions cause harm, our current understanding demonstrates that the landscape of provision is wide-ranging and complex in nature. A better understanding of how specific medical restrictions affect patients will provide a clearer understanding of how the medical community should consider these institutional religious restrictions and satisfy the majority of U.S. women who want information about religious health care restrictions.<sup>37</sup> A deeper understanding of the ethical implications on the patient–physician relationship can also inform whether protections are needed for patients and health care providers. In providing a more nuanced understanding of this intersection of medicine and religion, stakeholders charged with informing and enforcing the directives may better understand the implications of these restrictions and ensure ethical medical care.

## REFERENCES

1. Kaye JA, Amiri B, Melling L, Dalven J, Hasbrouck P. Health care denied and the threat to women’s health and lives. New York (NY): American Civil Liberties Union; 2016.
2. Catholic Health Care Association. Catholic health care in the United States. Available at: [https://www.chausa.org/docs/default-source/default-document-library/cha\\_2018\\_miniprofile7aa087f4dff26ff58685ff00005b1bf3.pdf?sfvrsn=2](https://www.chausa.org/docs/default-source/default-document-library/cha_2018_miniprofile7aa087f4dff26ff58685ff00005b1bf3.pdf?sfvrsn=2). Retrieved October 3, 2018.
3. U.S. Conference of Catholic Bishops. Ethical and religious directives for Catholic health care services. 6th ed. Available at: <http://www.usccb.org/about/doctrine/ethical-and-religious-directives/upload/ethical-religious-directives-catholic-health-service-sixth-edition-2016-06.pdf>. Retrieved September 10, 2018.



4. Humanae Vitae of Supreme Pontiff Paul VI. Available at: [http://w2.vatican.va/content/paul-vi/en/encyclicals/documents/hf\\_p-vi\\_enc\\_25071968\\_humanae-vitae.html](http://w2.vatican.va/content/paul-vi/en/encyclicals/documents/hf_p-vi_enc_25071968_humanae-vitae.html). Retrieved August 31, 2018.
5. Guiahi M. Catholic health care and women's health. *Obstet Gynecol* 2018;131:534–7.
6. Hafner BK. When the religious objection comes from your local hospital. Available at: <https://www.nytimes.com/2018/08/10/health/catholic-hospitals-procedures.html>. Retrieved August 31, 2018.
7. Peters MD, Godfrey CM, Khalil H, McInerney P, Parker D, Soares CB. Guidance for conducting systematic scoping reviews. *Int J Evid Based Healthc* 2015;13:141–6.
8. Arksey H, O'Malley L. Scoping studies: towards a methodological framework. *Int J Soc Res Methodol* 2005;8:19–32.
9. Levac D, Colquhoun H, O'Brien KK. Scoping studies: advancing the methodology. *Implement Sci* 2010;5:69.
10. Rubin SE, Grumet S, Prine L. Hospital religious affiliation and emergency contraceptive prescribing practices. *Am J Public Health* 2006;96:1398–401.
11. Rosenberg KD, DeMunter JK, Liu J. Emergency contraception in emergency departments in Oregon, 2003. *Am J Public Health* 2005;95:1453–7.
12. Smugar SS, Spina BJ, Merz JF. Informed consent for emergency contraception: variability in hospital care of rape victims. *Am J Public Health* 2000;90:1372–6.
13. O'Lane JM. Sterilization and contraceptive services in Catholic hospitals. *Am J Obstet Gynecol* 1979;133:355–7.
14. Six in 10 U.S. Catholic hospitals provide family planning; one in five offers medical sterilization. *Fam Plann Perspect* 1979;11:308–9.
15. Martin MC, Walker WR. Survey discloses NFP practices, preferences in U.S. Catholic hospitals. *Hosp Prog* 1982;64:52–8.
16. Stulberg DB, Dude AM, Dahlquist I, Curlin FA. Obstetrician-gynecologists, religious institutions, and conflicts regarding patient-care policies. *Am J Obstet Gynecol* 2012;207:73.e1–5.
17. Holt K, Janiak E, McCormick MC, Lieberman E, Dehlendorf C, Kajeepeta S, et al. Pregnancy options counseling and abortion referrals among US primary care physicians: results from a national survey. *Fam Med* 2017;49:527–36.
18. Patel A, Simons R, Piotrowski HZ, Schulman L, Petraitis C. Under-use of emergency contraception for victims of sexual assault. *Int J Fertil Womens Med* 2004;49:269–73.
19. Temin E, Coles T, Feldman JA, Mehta SD. Availability of emergency contraception in Massachusetts emergency departments. *Acad Emerg Med* 2005;12:987–93.
20. Polis C, Schaffer K, Harrison T. Accessibility of emergency contraception in California's Catholic hospitals. *Womens Health Issues* 2005;15:174–8.
21. Harrison T. Availability of emergency contraception: a survey of hospital emergency department staff. *Ann Emerg Med* 2005;46:105–10.
22. Guiahi M, Teal SB, Swartz M, Huynh S, Georgia S, Sheeder J. What are women told when requesting family planning services at clinics associated with Catholic hospitals? A mystery caller study. *Perspect Sex Reprod Health* 2017;49:207–12.
23. Catholics for a Free Choice. Contraceptive emergency: Catholic hospitals overwhelmingly refuse to provide EC. Available at: <https://www.thefreelibrary.com/Contraceptive+emergency%3a+Catholic+hospitals+overwhelmingly+ref+use+to...-a0106389297>. Retrieved August 31, 2018.
24. Bucar L, Nolan D. Emergency contraception and Catholic hospitals. *Conscience* 1999;20:20–2.
25. Stulberg DB, Hoffman Y, Dahlquist IH, Freedman LR. Tubal ligation in Catholic hospitals: a qualitative study of ob-gyns' experiences. *Contraception* 2014;90:422–8.
26. Eliot JW, Meier G. Fertility control in hospitals with residencies in obstetrics and gynecology: an exploratory study. *Obstet Gynecol* 1966;28:582–91.
27. Guiahi M, Hoover J, Swartz M, Teal S. Impact of Catholic hospital affiliation during obstetrics and gynecology residency on the provision of family planning. *J Grad Med Educ* 2017;9:440–6.
28. Foster AM, Dennis A, Smith F. Do religious restrictions influence ectopic pregnancy management? A national qualitative study. *Womens Health Issues* 2011;21:104–9.
29. Stulberg DB, Jackson RA, Freedman LR. Referrals for services prohibited in Catholic health care facilities. *Perspect Sex Reprod Health* 2016;48:111–7.
30. Freedman LR, Landy U, Steinauer J. When there's a heartbeat: miscarriage management in Catholic-owned hospitals. *Am J Public Health* 2008;98:1774–8.
31. Guiahi M, McNulty M, Garbe G, Edwards S, Kenton K. Changing depot medroxyprogesterone acetate access at a faith-based institution. *Contraception* 2011;84:280–4.
32. Hapenny S. Divergent practices among Catholic hospitals in provision of direct sterilization. *Linacre Q* 2013;80:32–8.
33. Weisman CS, Cassirer C, Sharpe VA, Morlock LL. The implications of affiliations between Catholic and non-Catholic health care organizations for availability of reproductive health services. *Womens Health Issues* 1999;9:121–34.
34. Guiahi M, Sheeder J, Teal S. Are women aware of religious restrictions on reproductive health at Catholic hospitals? A survey of women's expectations and preferences for family planning care. *Contraception* 2014;90:429–34.
35. Canning D, Schultz TP. The economic consequences of reproductive health and family planning. *Lancet* 2012;380:165–71.
36. Singh S, Darroch JE, Ashford LS. Adding it up: the costs and benefits of investing in sexual and reproductive health. New York (NY): Guttmacher Institute; 2014.
37. Freedman LR, Hebert LE, Battistelli MF, Stulberg DB. Religious hospital policies on reproductive care: what do patients want to know? *Am J Obstet Gynecol* 2017;218:251.e1–9.

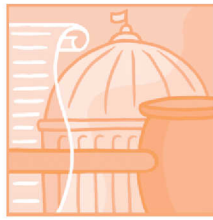
#### PEER REVIEW HISTORY

Received September 13, 2018. Received in revised form October 13, 2018. Accepted October 28, 2018. Peer reviews and author correspondence are available at <http://links.lww.com/AOG/B225>.





# Exhibit 392



misoprostol for abortion. *Contraception*. 1999;59:1–6.

18. Prine LW, Lesnewski R. Medication abortion and family physicians' scope of practice. *J Am Board Fam Pract*. 2005; 18:304–306.

19. Prine L, Lesnewski R, Berley N, Gold M. Medical abortion in family practice: a case series. *J Am Board Fam Pract*. 2003; 16:290–295.

20. Westfall JM, Sophocles A, Burggraf H, Ellis S. Manual vacuum aspiration for first-trimester abortion. *Arch Fam Med*. 1998;7:559–562.

21. Paul M, Nobel K, Goodman S, Lossy P, Moschella JE, Hammer H. Abortion training in three family medicine programs: resident and patient outcomes. *Fam Med*. 2007;39:184–189.

22. American Academy of Family Physicians. Colonoscopy (position paper). Available at: <http://www.aafp.org/online/en/home/policy/policies/c/colonoscopypositionpaper.html>. Accessed July 9, 2008.

23. Bartlett LA, Berg CJ, Shulman HB, et al. Risk factors for legal induced abortion-related mortality in the United States. *Obstet Gynecol*. 2004;103:729–737.

24. Vats V, Nutescu E, Blackburn JC, et al. Efficacy and safety of warfarin management in US anticoagulation clinic. *J Thromb Thrombolysis*. 2008 Feb;25:131.

25. Mehlhorn AJ. Safety concerns with fluoroquinolones. *Ann Pharmacother*. 2007;41:1859–1866.

26. Food and Drug Administration. Product labeling for Lotensin. Available

at: <http://www.fda.gov/cder/foi/label/2004/019851s028lbl.pdf>. Accessed January 24, 2008.

27. Keeton RE, Widiss AI. *Insurance Law: A Guide to Fundamental Principles, Legal Doctrines, and Commercial Practice*. St Paul, MN: West Publishing; 1988:§4.8(b) at 965.

28. *Medical Malpractice Insurance: Multiple Factors Have Contributed to Increased Premium Rates*. Washington, DC: Government Accountability Office; June 27, 2003. GAO-03-702.

29. Dailard C. Contraceptive Coverage: a 10-year retrospective. *Guttmacher Rep Public Policy*. 2004;7(2):6–9.

30. Wynn LL, Trussell J. Images of American sexuality in debates over non-prescription access to emergency

contraceptive pills. *Obstet Gynecol*. 2006;108(5):1272–1276.

31. Segal SJ. Liability concerns in contraceptive research and development. *Int J Gynaecol Obstet*. 1999;67:S141–S151.

32. American Academy of Family Physicians. Professional medical liability. Available at: <http://www.aafp.org/online/en/home/policy/policies/p/professionalmalpractice.html>. Accessed January 23, 2008.

33. Keeton RE, Widiss AI. *Insurance Law: A Guide to Fundamental Principles, Legal Doctrines, and Commercial Practice*. St Paul, MN: West Publishing; 1988:§4.8(b) at 963–967.

## When There's a Heartbeat: Miscarriage Management in Catholic-Owned Hospitals

Lori R. Freedman, PhD, Uta Landy, PhD, and Jody Steinauer, MD, MAS

As Catholic-owned hospitals merge with or take over other facilities, they impose restrictions on reproductive health services, including abortion and contraceptive services. Our interviews with US obstetrician-gynecologists working in Catholic-owned hospitals revealed that they are also restricted in managing miscarriages.

Catholic-owned hospital ethics committees denied approval of uterine evacuation while fetal heart tones were still present, forcing physicians to delay care or transport miscarrying patients to non-Catholic-owned facilities. Some physicians intentionally violated protocol because they felt patient safety was compromised.

Although Catholic doctrine officially deems abortion

permissible to preserve the life of the woman, Catholic-owned hospital ethics committees differ in their interpretation of how much health risk constitutes a threat to a woman's life and therefore how much risk must be present before they approve the intervention. (*Am J Public Health*. 2008;98:1774–1778. doi:10.2105/AJPH.2007.126730)

**OVER THE PAST DECADE, AS** Catholic hospitals have merged with and purchased nonsectarian hospitals around the United States, the lay press and legal journals have featured discussion about the impact of these mergers on patient care, particularly with regard to reproductive health.<sup>1–5</sup> The literature has focused on policies prohibiting tubal ligation, contraceptive

services, emergency contraception, and abortion. Although other religiously owned and nonsectarian hospitals may also prohibit or limit some of these services, Catholic-owned hospitals are the largest group of religiously owned nonprofit hospitals, operating 15.2% of the nation's hospital beds,<sup>6</sup> and increasingly they are the only hospitals in certain regions within the United States.<sup>7</sup> The result is that Catholic and non-Catholic patients alike come to depend on these facilities for emergencies, childbirth, and routine procedures without knowing how some of their options are potentially curtailed.

The findings reported here were not the original focus of our research. In the process of conducting a qualitative study about

abortion provision in the clinical practice of obstetrician-gynecologists, we interviewed 30 obstetrician-gynecologists around the United States. During the interviews, which were conducted in 2006, 6 physicians working with or within Catholic-owned hospitals revealed that they were constrained by hospital policies in their ability to undertake urgent uterine evacuation. They reported that Catholic doctrine, as interpreted by their hospital administrations, interfered with their medical judgment. For example, some of them were denied permission to perform an abortion when uterine evacuation was medically indicated and fetal heart tones were still present.

Catholic-owned institutions and their employees must adhere



to medical practice guidelines contained in the “Ethical and Religious Directives for Catholic Health Care Services” (hereafter called “the directives”) written by the Committee on Doctrine of the National Conference of Catholic Bishops.<sup>8</sup> The directives state that abortion is never permitted. However, regarding emergency care during miscarriage management, the manual used by Catholic-owned hospital ethics committees to interpret the directives states that abortion is acceptable if the purpose is to treat “a life-threatening pathology” in the pregnant woman when the treatment cannot be postponed until the fetus is viable.<sup>9</sup> The experiences of physicians in our study indicate that uterine evacuation may not be approved during miscarriage by the hospital ethics committee if fetal heart tones are present and the pregnant woman is not yet ill, in effect delaying care until fetal heart tones cease, the pregnant woman becomes ill, or the patient is transported to a non-Catholic-owned facility for the procedure.

Although medical journals have featured articles about a physician’s right to refuse patients treatment, referral, or information regarding services to which the physician has religious objections,<sup>10–12</sup> few articles in the medical literature published to date have addressed the effect of Catholic-owned hospital policies on patient care and the professional conduct of physicians.<sup>13,14</sup> One recent opinion piece in the *Journal of the American Medical Association* described how a patient was transferred from a religiously owned to a nonsectarian

hospital for labor induction to facilitate spontaneous abortion because the religious hospital would not allow the procedure until after she became septic.<sup>15</sup> The following interview excerpts demonstrate how 5 different Catholic-owned hospital ethics committees responded to 6 physician requests to evacuate the uterus during miscarriage and the resulting effects on miscarriage management.

### MISCARRIAGE MANAGEMENT

According to the generally accepted standards of care in miscarriage management, abortion is medically indicated under certain circumstances in the presence of fetal heart tones. Such cases include first-trimester septic or inevitable miscarriage, previable premature rupture of membranes and chorioamnionitis, and situations in which continuation of the pregnancy significantly threatens the life or health of the woman. In each instance, the physician must weigh the health impact to the woman of continuing the pregnancy against the potential viability of the fetus. Ideally, the physician then engages in a sensitive decisionmaking process with the patient. The physician reviews with the patient the risks of continuing the pregnancy and the likelihood of fetal survival, as well as management options that include “expectant management” (i.e., no intervention) and termination of pregnancy, with the physician often recommending a form of management. The patient then chooses how to proceed; when fetal survival is no longer

possible or when continuing the pregnancy involves significant risk, she may decide to terminate the pregnancy. For spiritual or psychological reasons, a patient may prefer to delay induction of labor or surgical uterine evacuation until there is no fetal heartbeat, even in cases in which the risk of expectant management to her health is great.

In general, this process of assisted decisionmaking is guided by informed consent or informed choice,<sup>16</sup> which requires that the patient understand all appropriate medical options, as well as the relevant risks and benefits of each, before choosing and consenting to a course of management. Informed choice and consent may be compromised when hospital policies restrict physicians from offering treatment options routinely available in other hospitals.

### OVERVIEW OF CATHOLIC POLICY

The standards of medical care put forth in the directives are at variance with those generally recognized in other medical settings, particularly regarding care at the beginning and ending of life. They were codified over 50 years ago to ensure strict obedience to Catholic principles by all employees of Catholic-owned hospitals, without local variation.<sup>17</sup> The directives sanction prenatal care and natural family planning but prohibit nearly all other reproductive services, including all other birth control methods, emergency contraception, infertility treatment, sterilization, and abortion.<sup>8</sup> In

Catholic-owned hospitals, physicians must request approval to terminate a pregnancy for any indication from the ethics committee, which interprets and enforces the directives. Such consultations can be done quickly over the phone with an on-call representative of the committee, typically a priest or nun, if the medical situation is urgent. In theory, therefore, consultation with the ethics committee presents only a minor delay to urgent care. If the situation is not urgent, the committee convenes to discuss the matter and then offers its ruling.

An important qualification of the prohibition of abortion is made in Directive 47. Termination of pregnancy is permissible if the health of the mother is at risk:

Operations, treatments, and medications that have as their direct purpose the cure of a proportionately serious pathological condition of a pregnant woman are permitted when they cannot be safely postponed until the unborn child is viable, even if they will result in the death of the unborn child.<sup>8</sup>

The death of the fetus is therefore acceptable as a secondary consequence of actions intended to preserve the health of the pregnant woman. However, the manual of Catholic hospital ethics committees, used to help them interpret and apply the directives, warns, “The mere rupture of membranes, without infection, is not serious enough to sanction interventions that will lead to the death of the child.”<sup>16</sup> By contrast, writing in a leading Catholic health journal, other Catholic health ethicists offer a more liberal



interpretation of Directive 47: uterine evacuation is indicated if abortion is inevitable and delay will harm the pregnant woman.<sup>18</sup> Therefore, the former—and arguably more authoritative—source approves of uterine evacuation only after a woman becomes sick, and the latter approves of it as a measure to prevent sickness. Our data indicate that despite Catholic leaders' desire for strict standardization of Catholic-owned health services, varying interpretations and executions of Directive 47 exist both at the individual (practitioner) and institutional (hospital ethics committee) levels.

## STUDY AND METHODS

Our findings arose from a study that was not originally focused on care in Catholic-owned hospitals. In-depth interviews were conducted in person and over the telephone with 30 obstetrician–gynecologists to determine the impact of residency abortion training on their future medical practice. Study participants graduated between 1996 and 2001 from residency programs in the western, midwestern, northeastern, and southern United States that offered routine abortion training, as opposed to elective or “opt-in” training. Most physicians in the study reported that they had participated in such training.

Requests for study participation, contact information, and consent forms were sent to all residents (about 150 in total) of 4 residency programs, one in each of the regions. In this way, we obtained interviews with 30

physicians—at least 5 from each region. Questions were designed to assess the effects of abortion training during residency and obstacles to the subsequent practice of abortion in their various professional environments. Transcripts of the interviews were analyzed with Atlas.ti 5.0 (ATLAS.ti Scientific Software Development GmbH, Berlin, Germany) for thematic content.

Thirteen of the physicians interviewed had worked in Catholic-owned hospitals regularly or occasionally since their residency. The following reports concerning miscarriage management come from 6 physicians working with and within Catholic-owned health institutions, each of whom reported at least one such event. Five of the 6 physicians participated in abortion training. Two of the 6 physicians currently work in academic medical centers and have continued to perform abortions after residency, and the remaining 4 are prohibited from doing so by their Catholic-owned institutional employers.

In the interview excerpts, the initials of physicians' names are based on pseudonyms. Physicians offered their accounts in the context of questions about their work history and whether they had experienced conflict with colleagues or superiors over the issue of abortion. Although the effect of religious ownership of health care was not initially a focus of our study, we believe it is important to examine and document these cases to highlight miscarriage management in Catholic-owned hospitals and find ways to improve care for pregnant women.

For purposes of confidentiality, no identifiers beyond the type of physician and the region and size of the city in which he or she practices are given.

## RESULTS

### Nontreatment, Delays, and Transport of Patients

Obstetrician–gynecologists working in Catholic-owned hospitals described cases in which abortion was medically indicated according to their medical judgment but, because of the ethics committee's ruling, it was delayed until either fetal heartbeats ceased or the patient could be transported to another facility. Dr P, from a midwestern, mid-sized city, said that at her Catholic-owned hospital, approval for termination of pregnancy was rare if a fetal heartbeat was present (even in “people who are bleeding, they're all the way dilated, and they're only 17 weeks”) unless “it looks like she's going to die if we don't do it.”

In another case, Dr H, from the same Catholic-owned hospital in the Midwest, sent her patient by ambulance 90 miles to the nearest institution where the patient could have an abortion because the ethics committee refused to approve her case.

She was very early, 14 weeks. She came in . . . and there was a hand sticking out of the cervix. Clearly the membranes had ruptured and she was trying to deliver. . . . There was a heart rate, and [we called] the ethics committee, and they [said], “Nope, can't do anything.” So we had to send her to [the university hospital]. . . . You know, these things don't happen that often, but from what I understand it, it's pretty clear. Even if mom is very sick, you know,

potentially life threatening, can't do anything.

In residency, Dr P and Dr H had been taught to perform uterine evacuation or labor induction on patients during inevitable miscarriage whether fetal heart tones were present or not. In their new Catholic-owned hospital environment, such treatment was considered a prohibited abortion by the governing ethics committee because the fetus is still alive and the patient is not yet experiencing “a life-threatening pathology” such as sepsis. Physicians such as Dr H found that in some cases, transporting the patient to another hospital for dilation and curettage (D&C) was quicker and safer than waiting for the fetal heartbeat to stop while trying to stave off infection and excessive blood loss.

Dr B, an obstetrician–gynecologist working in an academic medical center, described how a Catholic-owned hospital in her western urban area asked her to accept a patient who was already septic. When she received the request, she recommended that the physician from the Catholic-owned hospital perform a uterine aspiration there and not further risk the health of the woman by delaying her care with the transport.

Because the fetus was still alive, they wouldn't intervene. And she was hemorrhaging, and they called me and wanted to transport her, and I said, “It sounds like she's unstable, and it sounds like you need to take care of her there.” And I was on a recorded line, I reported them as an EMTALA [Emergency Medical Treatment and Active Labor Act]