The Pharmaceutical Industry and Student Resistance: A Political Economy Perspective on Pharmaceutical Industry Influence in Medical Education in the United States and Canada

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Abstract

The following is an investigation of pharmaceutical industry influence in medicine in the United States and Canada and students' responses to it. I present the results of 50 interviews with medical students who are critical of the pharmaceutical industry, from the American Medical Student Association, the Canadian Federation of Medical Students, Students for Medicare, and other organisations. I use political economy to trace relationships between the health industry and higher education in the U.S. and Canada in order to describe the political and social dimensions of how medical knowledge is created, and to understand how medical students resist industry influence. I argue that industry influence is pervasive throughout medical education, and that this is the product of an historical confluence of medicine, education and profit in the context of capitalism. The experience of this context is full of tensions, as hegemonic discourses are re-produced, negotiated and challenged. Participants in this study are critical of the profit-motive in health, and also accept it as inevitable; they recognise that commercial interests enter into the way that medical evidence is produced, and also defend the objectivity of science. I discuss the complexity of these apparent contradictions by attending to medical students' agency. The participants of this study are uncomfortable with the presence of industry in their medical education, and in turning primarily to the confines of that very education for solutions, encounter the limitations of a system that is deeply complicit with industry interests. I argue that the the forms of resistance I have investigated have the potential to reinforce hegemonic ideas about medicine and industry, namely that they are 'partners,' but it also has the potential to disrupt that dominant ideology by demonstrating how industry can have a detrimental impact on the

care of patients, challenging the ability of the market to allocate resources equitably, and unmasking the problems inherent in medical research that is motivated by profit.

Dedication

To my husband, Eric Newstadt, for believing in me, for challenging me and inspiring me, and for his love and devotion through everything – signal hill, the student movement, the strike, a small apartment, another small apartment, a house, a renovation, a wedding, a baby, many jobs, many trips, and two dissertations. I don't know how I was so fortunate to find a partner that could meet me on the other side of every storm a little stronger together.

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Chapter One: Introduction

Purpose

Pharmaceutical industry influence in medical education is not a recent phenomenon. In the 1950s, medical schools in the U.S. organised trips to pharmaceutical plants as part of their educational experience. In an address to the Association of American Medical Colleges in 1959, Eugene N. Beesley, then President of Eli Lilly and company begins by articulating his hope and belief that he was invited because of the realisation that medicine and the pharmaceutical industry have a lot in common, and should be working together. Noting the establishment of a liaison committee between the AAMC and the Pharmaceutical Manufacturers Association, and applauding the fact that about half of the AAMC's medical schools have senior medical students visit pharmaceutical plants as part of their educational experience, he states: "The modern ethical pharmaceutical company is well equipped and staffed to be a medical classroom within certain defined areas" (Beesley 1960: 334). As the industry has grown, actively courting doctors and doctors in training along the way, those defined areas have multiplied, expanded, and in a sense they have become undefined and ubiquitous: from gifts, lunches, educators who are paid by industry, textbooks produced by industry, to the very research informing practice, either funded by industry or ghostwritten by industry, industry's presence in medical education is pervasive.

Some students have resisted this presence – a point that has been neglected in the historiography of the pharmaceutical industry's influence in medical education. Indications of resistance are difficult to uncover but there are scraps of evidence. "Concerned Rush Students" from Rush University Medical Centre in Chicago penned a

hard hitting critique in the 1976 issue of "Science for the People" in which they claim that "from the time they enter medical school, students are bombarded with gifts of stethoscopes, reflex hammers, pamphlets, and books, culminating at graduation with engraved black bags to keep it all in...We think it is crucial to ask why the drug companies are so interested in medical students and to analyze the goals and effects of the industry's generosity" (6). Resistance such as this provides an opportunity to understand both the ways in which the pharmaceutical industry, which I refer to throughout as the 'industry,' attempts to influence students and the way in which students interpret and respond to such efforts. The following investigation explores these dynamics in a contemporary context.

There are many ways various industries can influence medical education. This thesis focuses on the pharmaceutical industry, particularly large pharmaceutical corporations that develop, produce and market drugs, and on the ways in which this industry is present in medical education.

Gifts are an obvious example of such influence. Not all students find drug company gifts to be offensive. Even the Rush students lament the fact that their peers don't seem to care about it, uncritically accepting gifts. Since the 1990s there has been a body of academic work, mostly from the U.S., invested in understanding how students feel about pharmaceutical industry interactions and gifts.[1] This survey-based literature, which is discussed in more detail in Chapter Six, corresponds to a concern amongst medical researchers and educators about industry influence more generally, and the

[1] Austad et al. 2011, Barfett et al.. 2004, Bellin et al. 2004, Hodges, Brian, 1995. Hyman et al. 2007, Keim et al. 1993, Lurie et al. 1990, McCormick et al. 2007, Misra et al. 2010, Monaghan et al. 2003, Randall et al. 2005, Reeder, et al. 1993, Sandberg et al. 1997, Schneider et al. 2006, Sergeant et al. 1996, Sierles et al. 2005, Soyk et al. 2010, Palmisano and Edelstein 1980, Vinson 1993, Zipkin and Steinman 2005

perception their patients have of the influence of industry. It documents attitudes toward industry and various educational strategies intended to address industry interventions, measures conflict of interest policies across academic medical centres and financial ties between educators and industry. But it was not until the American Medical Students Association formed the Pharmfree campaign in 2001 that American students really appeared on the scene as players shaping the discourse about industry influence. They have organised to uncover the myriad ways that industry intervenes in their education, voiced opposition and organised a national campaign criticizing industry presence in medical education, originally proposing policy to ban all pharmaceutical advertising and sponsorship (AMSA 2012). To explore student analysis and agency as social actors I speak with students participating in this movement to shed light on the extent of industry influence in medical education, and to offer a window into how capitalist ideologies function at an everyday level in medicine and higher education.

The questions guiding this research are: first, how do medical students who are critical of the pharmaceutical industry's influence on medical education characterise the problem; second, what do they see as the solution to industry influence; third how do they resist industry influence; and fourth, what are the differences and similarities in the experiences and understanding of this issue between medical students in the United States and Canada? These questions are guided by an interest in understanding what kind of critical consciousness medical students develop about the influence of the pharmaceutical industry in medical education and where this consciousness leads.

Primary Argument

I argue that industry influence is pervasive throughout medical education, and that this is the product of an historical confluence of medicine, education and profit in the context of capitalism. The experience of this context is full of tensions, as hegemonic discourses are re-produced, negotiated and challenged. Participants in this study are critical of the profit-motive in health, and yet accept it as inevitable; they recognise that commercial interests enter into way that medical evidence is produced, yet adamantly defend the objectivity of science. I attempt to represent the complexity of these apparent contradictions. In short, the participants of this study are uncomfortable with the presence of industry in their medical education, and in turning primarily to the confines of that very education for solutions, encounter the limitations of a system that is deeply complicit with industry interests.

Approach

The following is an investigation of pharmaceutical industry influence in medicine in the United States and Canada and students' responses to it. I present an analysis of 50 interviews with medical students who are critical of the pharmaceutical industry, from the American Medical Student Association (AMSA), the Canadian Federation of Medical Students, Students for Medicare, and other organisations. I use political economy to trace relationships between the health industry and higher education in the U.S. and Canada in order to describe the political and social dimensions of how medical knowledge is created. I draw on the work of Armstrong and Armstrong (2010), Coburn (2000) and Slaughter and Rhoades (2004) to understand the politics of contemporary health care and higher education. These works attend to historical context, investigating how social dynamics are created and identifying structures and relationships that help to

explain phenomena. In my use of political economy, the capitalist program of accumulation is a logic that permeates social relations at many levels on a global scale. One way in which this logic permeates medical education is through the interactions between the pharmaceutical industry, physicians and students of medicine. Thus I explore how political, economic and social systems have been organised to expand market relations into healthcare and education, and how that has influenced what it means to be a student of medicine. With respect to this student experience of medical training, I rely on important work from the field of medical sociology to give depth and historical context to my analysis. Particularly, I take up some of the literature on medical dominance and professionalism, clinical uncertainty, and the 'hidden curriculum.' Ultimately my intention is to understand the pharmaceutical industry's influence on medical education in the context of capitalism and the ways that medical students resist industry influence in their education.

In order to make connections between the context of capitalism and the experiences of medical school, I study how medical students behave when they are faced with the moral dilemma represented by industry. The survey-based literature on industry and medical education reveals that even students who disagree with the industry's presence accept gifts, lunches, textbooks and occasionally all-expense paid trips paid for by pharmaceutical companies. We might conclude that they are hypocrites, or that they are unaware, lacking a conscience or consciousness about their behaviours. The participants in my study illuminate that apparent contradiction by discussing the pressures of medical education and the negotiations they undertake to get through. The students selected for my study are critical of industry, but many are not

particularly radical, meaning that they do not intend to fundamentally alter medicine or any other social system. They hold ethical values in keeping with traditional professional norms. I am able to pay attention to the qualitative dimensions of students' interpretations and experiences with the use of sociological theory outlined below.

I approach this subject through qualitative inquiry, drawing on the interpretivist tradition in sociology. I attempt to see how social actors create, maintain and change their social world in their everyday interactions. In this study I consider how participants take on social roles, reflect on their actions and internalise social expectations. I try to bring students' voices into my analysis of their experience – to understand how they create a particular social ordering. My analytical focus is the social relations of capitalism understood within a political economy framework and the impact of these forces on medical education, but I am careful not to lose sight of how social actors interpret and create meaning from their interpretation. Importantly, those meanings and the expression of human agency that arises from human interpretive capacities comes up against material and ideological constraints.

In the classic sociological work on medical education *Boys in White*, Becker and colleagues investigated how the conscious aspects of human behavior are related to the individual's participation in group life using symbolic interactionism (Becker et al. 1961: 19). The limitation of this methodological approach is that it does not sufficiently attend to the political and economic structures that inform how the medical school is organised and how ideas about medicine are shaped by forces outside of the medical school as well as inside. These limitations are borne out in *Boys in White*. My investigation does attend to these questions of structure and is thus different in

important ways. But what *Boys in White* does well, is describe how people shape their conduct by taking the expectations of others into account (Becker et al. 1960: 19). Becker and colleagues wanted to hear 'gripes' and complaints. This approach helped them to discover how the social order was negotiated, the assumption being that those who are in some way disgruntled are perhaps less likely to take things for granted: "If it is true that conflict and tension arise when the expectations governing social relationships are violated or frustrated, then it is clear that study of such instances will reveal just what those expectations are; and the discovery of such expectations is an important part of the sociological analysis of any organisation" (21).

In my interviews with students, I used their complaints about the pharmaceutical industry as an opportunity to identify what they thought medicine should be, what the industry represented for them, and how they organised their daily life to address that conflict between the two dynamics. Like Becker and colleagues, I hone in on aspects of students' experience of medical school that produce conflict and tension. My interest in exploring conflict and tension allowed participants to identify instances where they were particularly aware of industry influence and in articulating their complaints about this influence they revealed basic elements of their expectations and assumptions about medicine. My study focuses on students who are critical of industry to take up that instance of frustration, and from there, understand the sources and outcomes of the conflict they encounter. Methodologically, I move beyond the interpretivist tradition to situate that frustration and the parameters of how students interpret the tensions produced by industry in the political and economic context of capitalism. These

structural forces both produce material conditions that limit what social actors can do, and ideological conditions that inform interpretations.

I focus on students who are critical of the pharmaceutical industry because, very simply, they care. Caring denotes sensitivity to an issue – an attention that would likely be lacking in those who don't care. Because of this sensitivity these students notice when a lecturer is unusually adamant about using a particular drug; they might even investigate whether that person is funded by the drug's manufacturer. When these students are in the clinic, they pay attention to who brings coffee to everyone in the office, who develops relationships with clinicians, and what those people say about medication. While I would get a better sense of the opinions of medical students in general if I interviewed a broader sample, speaking to those who are explicitly opposed to pharmaceutical influence is more fruitful for gaining a specific kind of insider's insight into how the industry is present in education, and how resistance takes place. These students have had to encounter a presence they find problematic and then decide how to negotiate that presence. I find this process demonstrates a struggle in consciousness shaped by the political economy and ideas about professionalism. It would be equally interesting to speak with students who are adamantly in support of industry, similarly because they care. I have chosen to speak to students who are opposed because of a secondary objective which is to understand how opposition is constructed, organised and lived.

Throughout my analysis I use the above tools to point to the ways in which students attempt to negotiate, accommodate or resist the presence of industry. When students addressed the way that industry influences medical research, they made an

effort to assess the quality of evidence by evaluating the extent to which industry had shaped that research agenda and produced particular results. I draw from the field of Science and Technology Studies (STS), to consider claims about the objectivity of science when I discuss the way that evidence is interpreted.

While the interpretivist approach offers insight into the way that students describe their experiences, it is limited when it comes to situating actor's experiences in the broader context of economic and political forces; namely the drive for profit that is endemic to a capitalist mode of production. I feel compelled to both understand everyday experiences from the perspectives of students and also to see their experiences as part of broader social structures. I am inspired by the work of Dorothy Smith, for her ability to move between the everyday interactions of social actors, and the 'extra-local relations' that are shaped by and also influence those experiences. I attend to the standpoint of participants as a 'window into an institutional form.' As George Smith writes (1998), "An institutional ethnography opens a series of windows on an institutional form from the standpoint of different informants' experiences within it. Each informant, as a knowledgeable participant, provides an account of it from his own social location" (312). I am interested in how the social location of participants has an impact on their perspective on hegemonic discourses.

As a tool to understand how hegemonic discourses are at play in this investigation, I also employ the normative politics of immanent critique, which is as Forst (1996) put it is "not a 'dogmatic' standpoint beyond material and historical reality but a standpoint within that reality pointing out the contradictions inherent in it" (139). My critique is localised and contextualised and "foregrounds an interest in exploring

tensions and/or contradictions within authoritative forms of knowledge" (Mykhalovskiy et al. 2008:195). This approach works effectively with my attention to conflicts or 'gripes,' and also helps to point to the broader relations informing the context of those conflicts. I build on efforts of Mykhalovskiy et al. (2008) to operationalise this approach through empirical research, paying attention to broadening public discourse about a dominant ideology; in this case that dominant ideology of a profit-motive in medicine is expressed through efforts to commercialise medical research. I discuss the experiential accounts of medical students to point to tensions in the claims of neo-liberal approaches to health care. I also expand the debates on pharmaceutical industry presence in medicine through the use of critical insight from those that are being educated in medicine within the context of a neo-liberal economic system.

Findings

The participants of this study talked about how industry is present in their medical education by noting specific instances where they have encountered 'industry presence.' Many participants focused on one or two specific incidents where the presence was particularly noticeable and most said the presence of industry was most obvious when they entered the clinical portion of their education. Some did talk about influence in the pre-clinical years: several spoke about being in a class where the lecturer was clearly speaking favourably about a particular company or drug, and then finding out later that that professor was sponsored by that drug producer through either their research or their participation as a consultant for the company. One student said the very slides that a professor used to promote a company's product in their capacity as a consultant were presented as lecture material in the classroom. A couple of other

students said text books produced by a pharmaceutical company were distributed to medical students in lecture as an optional resource. This represents a rather substantial 'gift' which was not presented as a gift from industry but as a learning resource. When participants talked about industry influence in the clinical portions of medical education, they said that every pen and notepad in the office bore a pharmaceutical company logo. These objects were also gifts from industry, but did not seem to be presented specifically to medical students – they just made up the landscape of the clinic because they had been given to the physician. Other features of this landscape included charts and educational materials with industry logos, and cupboards full of samples. The gift that seemed most accessible and directed to the medical student was food, in the form of free lunches at grand rounds, coffee, snacks and dinners. The gift of food was social, and was often accompanied by the physician helping to forge a relationship between the industry representative and the student. Many students talked about how their superiors would introduce the industry rep to them as a 'friend,' or encourage them to attend an industry sponsored dinner to learn more about a specific disease or drug.

The participants of this study registered discomfort with the above examples of industry influence. Their articulations of and responses to this discomfort took different forms and changed continuously as they attempted to navigate the demanding requirements of medical education. Often they looked to credible resources from within the profession of medicine for guidance about how to address their discomfort.

A recent wave of critical works about the pharmaceutical industry by physicians and medical educators has operated as an informal curriculum for medical students who are seeking a framework for criticizing the pharmaceutical industry's influence in their

education (Angell 2004, Kassirer 2005, Avorn 2005, Brody 2007). This work has mainly framed the problem as a conflict of interest, which is useful in some cases, but also reduces the complex interrelationships between physicians and industry to two equal competing interests, ignoring power-relations and posing physician-industry relations as a discrete professional matter, rather than a historically rooted and pervasive political matter. In some ways participants re-produced this type of analysis, but were particularly attentive to an undercurrent of the professionalism literature about the commercialization of medicine, and the importance of putting patients before profits.

When students described the values that inform their approach to medicine, they appealed to traditional professional norms, such as a commitment to patients, altruism and a belief in the objectivity of science. When they described their opposition to industry they consistently talked about the fact that they opposed the role of profit in medicine because it could de-prioritise the importance of putting patients first. Their values were very much in line with professional norms, but they expressed a particularly pressing concern about profit and commercial interests in medical education.

Industry is present throughout medical education according to these participants, though not in every context and not always obviously. Students who identify as critical of industry react to this presence through a number of different strategies: they avoid, negotiate, compromise or outright resist. They do not simply absorb the presence, but interpret it in complex ways and act accordingly. When they entered the clinic they had to grapple with the conflict industry represented for them most starkly. The presence of industry representatives, samples, free lunches and gifts produced uneasiness in many participants. Even if these participants objected to industry influence, many of them saw

its presence as inevitable. Given industry presence, they wanted to know more about how it can influence practice and how they should address conflict of interest. They were concerned that these sorts of discussions about how the industry can influence practice were almost completely missing from the curriculum.

When it came to resisting the pharmaceutical industry's influence, those who were engaged in campaigns with other medical students developed a consciousness about the issue itself and more generally about their ability to effect change. Students who resisted mostly on their own or in isolation (which was most commonly the experience of resistance in Canada) were less confident about their ability to effect change, and relied more on their superiors to critically address the presence of industry. Students who are at the forefront of organizing the AMSA Pharmfree campaign were more apt to see the work of critically addressing industry as their own struggle as medical students. At the same time, they appear to be at a crossroads about whether to declare that they are against pharmaceutical industry influence in medical education in all forms, or accept that they cannot control its influence in some areas, particularly when it comes to medical research. This reluctance to take on industry influence in medical research informed the way that participants relied on evidence-based medicine as a way to solve the problem of 'bias' in clinical decision-making. They felt that they could work towards eliminating or minimising the presence of industry in the pre-clinical years by mandating that lecturers disclose conflict of interest or by banning gifts from pharmaceutical companies to medical students, for instance. But they felt less confident about how to take on the more ubiquitous influence of industry in research through

means such as research funding and ghostwriting. They wanted a pragmatic solution to this unease about the clinical evidence and its industry ties.

Participants approached clinical decision making with uncertainty with respect to the source of clinical knowledge. Most thought of evidence-based medicine as a way to address that uncertainty by using it as a method to weed out 'bias,' and this was reflected in their campaigns, particularly in the Pharmfree campaign. Others recognised the degree to which the body of evidence informing clinical decision-making was shaped by industry influence, and continued to struggle with uncertainty.

Discussion

My findings suggest that the influence of the pharmaceutical industry is pervasive throughout medical education in both the United States and Canada. This is the result of the historical convergence of medicine, education and capitalism. It is not an anomaly, or an isolated instance of 'commercialisation.' Since capitalism has gained prominence as the primary mode of production in a modern context, the profit-motive runs deep in medicine. I explore the way that this has taken place in the U.S. and Canada, and argue that capitalist ideologies find expression in neoliberal policies and initiatives encouraging increasingly close relationships between medicine and industry, as 'partners.' This does not mean that medicine is guided by a purely capitalist ideology. Hegemonic ideas are pervasive but not static – they can be challenged. Physicians have historically both supported and resisted the commercialisation of medicine. The values that inform medicine are infused with social and political norms that change dialectically. The participants in this investigation are not passive recipients of industry influenced medical education, but think critically about this influence and resist the

presence of a profit-motive in medicine. They also encounter the limitations of challenging commercial interests in the context of capitalism.

While many participants had a problem with the presence of a profit-motive in medicine, they did not pose radical alternatives. The values that inform these participants are rooted in traditional professional norms in U.S./Canadian health and medicine – including putting patients first, universal access to health care services, doing no harm, improving lives, and critical thinking, which was linked to doing good science. These values emerge within the context of medical education, are taken up by the participants of this study, and help to inform the way that medical students perceive industry influence in their education. The ideas informing participants' criticisms of industry and resistance to industry emerge from the context of their medical education.

As mentioned previously, the educational system has accepted the neoliberal framework of a partnership between industry and education. Given this partnership, tensions arise from efforts to find solutions to industry influence within the confines of medical education. The educational system has been invested in accommodating industry for decades, and that framework has an impact on the type of knowledge that is produced in medical school. If industry is accepted as a given, there are limits to how physicians, professors, researchers and students can challenge the presence of the pharmaceutical industry. Two of the primary ways the critique has been framed are through the notions of conflict of interest and evidence-based medicine.

This dissertation problematises the use of both conflict of interest and evidence-based medicine as solutions to industry influence in medical education. On one hand, both frameworks have been useful in defining the role of industry and working to ensure

that a profit-incentive is not the primary motivator for medical care. On the other hand, both of these frameworks have allowed the industry to continue to be deeply invested in the structural and ideological foundations of both medicine and education. My research with medical students explores this paradox.

Universities in Canada and the United States have become places not only where medical students are trained in the skills and ethos of their profession, but also where the primary tenets of neoliberalism, commodification, corporatisation and privatisation are finding expression. One way this is happening is through an increasingly close relationship between the pharmaceutical industry, university education, and research in medicine and the sciences. The biomedical model of health continues to develop along with capitalist expansion and its accompanying privatisation and corporatisation as the dominant form of medical knowledge and practice in modern societies.[2] Most students who are involved with movements resisting the relationship between industry, education and research rarely criticise the biomedical model of health, or neoliberalism. My research shows that resistance that does exist is in some cases laden with the assumptions of those models, and that the relationship between the biomedical model and neoliberalism requires close attention in this context. My research also reveals how resistance on the part of medical students is situated within the constructs of a biomedical approach to health and illness and sheds light on the limitations of this movement in terms of challenging an approach to health and medicine that is invested in a capitalist drive for profit.

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[2] The 'biomedical' or 'scientific' model, draws upon biochemical explanations of ill health as the basis for treatment and intervention, as opposed to the focus of other forms of non-allopathic medicine (Yuill et. al 2010).

It is my hope that this work is not only a scholarly contribution to the field of medical sociology but a discussion topic for medical students who are in the midst of the difficult and delicate task of resisting pharmaceutical industry influence while learning to practice medicine. I have enormous respect for these students, who are already burdened with the considerable effort of completing medical training. Their efforts, either as individuals painstakingly investigating the possibility of corporate bias in the clinical evidence they use to inform medical decision-making, or as organisers of a lunch-time session on industry bias in research, or as leaders of a national movement, should not be underplayed. They have the ability to transform medicine. They also have the potential to support the hegemonic ideas about allopathic medicine, and to endorse the neoliberal notion that 'partnership' between medicine and industry is natural, inevitable, and good. I hope that this work helps to illuminate the choices that are being made by movements to address industry influence, and help spark further discussion about ways forward. My critique is an indication of my confidence that these students have the ability to transform medicine to reflect their very earnest and very honourable efforts to practice medicine effectively and justly.

Chapter Two: Medical Knowledge and Capitalism

In the following chapter I explore the relationships among medicine, education and the pharmaceutical industry, drawing primarily from political economy. I trace the historical associations between physicians, higher education and the health care industry in order to establish that industry influence in medical education is the logical outgrowth of a particular social and economic order. This order is not static or cohesive. It is subject to challenges, disruptions and contradictions. My attention to medical students who are critical of industry influence is in part an effort to understand how the logic of capitalism is supported, refuted, undermined or promoted in the midst of the contemporary uproar over "big pharma." Importantly, the industry does not simply produce drugs; it also produces ideas, and it does so within the walls of higher learning. Thus the interactions over pens with pharmaceutical logos and industry sponsored lunches are windows into a set of assumptions about medical knowledge. The following is an effort to situate the development of those assumptions in an historical context to set the stage for my investigation of industry influence in medical education and help explore the contradictions in resistance to industry influence.

My overall intent in the following chapter is to refute the notion that the pharmaceutical industry can be seen as separate from modern medicine – a corrupting influence which can effectively be isolated and addressed through policies to mitigate the dangers it represents. I begin by arguing that the pharmaceutical industry's success is in major part due to the political and economic context of neoliberalism. This framework has created an ideological and regulatory terrain that promotes and encourages industry interests. I then refute the claim that neoliberalism improves

societies and makes medicine more efficient and effective, suggesting that profit has a detrimental effect on health care. Neoliberalism is founded upon the logic of capitalism, a logic that has had considerable influence in defining modern medicine. I outline the ways in which biomedicine came to be a dominant ideology emerging with a capitalist mode of production and its resulting class interests. Because physicians have been the dominant professional class within the history of medicine in capitalism, they have had a certain authority in determining the contours of medical knowledge. I explore the tensions and contradictions for physicians' approach to practicing medicine within the context of capitalism, particularly as their authority is being undermined by growing health care industries. Physicians' knowledge about medical practice is initially shaped within the context of medical education. To situate that educational experience within its political and economic context, I outline neoliberal efforts to reform higher education to accept 'partnerships' between education and industry, and then discuss how this partnership has been accepted in the contemporary era. This is a conflicted acceptance from some physicians and medical students, who turn to solutions from within the biomedical model of health. One such solution is evidence-based medicine. Through a discussion of evidence-based medicine, I unravel some of the ways in which students address industry influence in education. I end with thoughts about how education and capitalism intersect in the production of medical knowledge.

To address the above arguments I take up some of the key themes from the social science literature on the pharmaceutical industry, which include: medicalisation and pharmaceuticalisation;[3] regulation, politics and the political economy of industry;[4]

[3] For example, Healy 2010. Moynihan 2005.
[4] For example, Abraham 2003, 2010, Abraham and Ballinger 2012, Timmermans 2010, Mirowski 2010

science as a social enterprise,[5] and anthropological work on gift giving.[6] There is also an important body of literature on medical education, which deals with the socialisation of medical students[7] the 'hidden curriculum,'[8] medical education in its historical and political context, [9] medical uncertainty[10] and professionalism.[11] While touching on these themes this chapter consciously moves outside of that canon. Sociologists of medical education have not adequately paid attention to the way that the pharmaceutical industry is influencing medical education. In fact, as Brosnan and Turner have argued in the 2009 *Handbook of the Sociology of Medical Education*, medical sociology in the past fifty years has been preoccupied with ethnographic inquiries in specific medical schools. The few studies on medical education since the 1970s have deferred to Merton's structural functionalist legacy or Becker et al.'s symbolic interactionist approach, ignoring the influence of political economy, post-structuralism and postmodernism (Brosnan and Turner 2009). The result is an inability to address contemporary problems in medical education – particularly concerning the distribution of power in modern societies (ibid). As Brosnan and Turner (2009) put it, sociology "is oriented critically to consider the full spectrum of social processes shaping medical education, from student socialisation to global health-policy changes, and draws from a wide range of theories and methods" (2). I turn to this spectrum with the following discussion.

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[5] Sismondo 2008, Mody and Kaiser 2008, Croissant and Smith-Doerr 2008
[6] For example, Oldani 2004
[7] For example, Becker et al. 1961; Merton et al., 1957, More recently, Hass and Shaffir 1982 and 1984, Brenda Beagan 2003, 2005.
[8] For example, Hafferty and Franks 1994.
[9] For example, Cockerham, William C. 2009, Greene, Jeremy A. and Scott H. Podolsky. 2009
[10] Fox, Renee 1957 and 2002
[11] For example, Hafferty and Castellani 2011

Before entering into the argument framed above, I make a brief observation about the terms of the debate over the pharmaceutical industry today. The principle critique of medicine in the 1970s is summed up in the words of Ivan Illich (1976) as: "The Medical Establishment has become a major threat to health" (3). In recent years, a movement of physicians and researchers has emerged, criticising the influence of the pharmaceutical industry in medicine, perhaps best encapsulated in David Healy's (2012) recent work *Pharmagedon*, where he succinctly writes: "Medicine as we have known it is at death's door" (234). If Healy is a modern Illich in his ability to crystallise unease about medicine, his argument about the commercialisation of medicine is different in distinctly contemporary ways. While both of these statements are perhaps intended to alarm the public into addressing the deep-seated problems with medicine, Illich insinuates a power struggle, between The 'Establishment' and the public - and suggests that if The Medical Establishment is a threat to health, it should be challenged. In Healy's characterisation, medicine is at risk, and patients are the casualties. I have chosen these two quotes not to simplify the matter, but to present two snapshots in the critical work on medicine. Prior to the 1980s, those who criticised medicine sometimes did so by quite clearly situating it within the capitalist mode of production. In the contemporary era of globalisation and neoliberalism, there seems to be a certain reticence in mentioning capitalism. Instead, the analysis from the critics of medicine is that industry has corrupted medicine, but if addressed, the integrity of medicine can be resurrected without fundamentally disrupting any power structures. The faith in medicine inherent in this presumption speaks to rather positivist assumptions that good medicine is based on science, and if science has not been contaminated, it wields a power of its

own. These positivist assumptions run the risk of depoliticizing the dynamic, and taking power out of the equation. The following account seeks to contextualise power, medicine, and medical knowledge.

A Neoliberal Success Story

This investigation distinguishes between health and medicine, where health is the state of being free from illness or injury, and medicine entails the practices of diagnosis, treatment and prevention of disease (New Oxford Dictionary of English 2001 846; 1150). The latter has often been referred to as the biomedical model of health. This model poses medical science as disinterested and objective and suggests that disease can be understood by studying individual cells, organs or bodies according to the laws of science. Biomedicine has been critiqued for reducing disease to a phenomenon of an individual body part rather than a complex interaction of an individual with the social world, and for claiming to be value free while it actually operates within a normative framework (Annandale and Hunt 1998). Medicine is embedded in the social relations of medical knowledge production. Furthermore, these relations reflect the normative assumptions and interests of capitalism, and its current formulation, neoliberalism.

In the past 30 years the pharmaceutical industry has grown to be an enormously profitable global industry. Prescription drugs sales tripled from 1980 to 2000 representing more than $200 billion a year (Angell 2004: 3).In 2010 the global market for pharmaceuticals was worth over $900 billion (Healy 2012). Consumption of blockbuster drugs has grown from 6 per cent of the pharmaceutical market in 1991 to 45 per cent in 2006 (Healy 2012). The particular context in which this industry has come to achieve such success is the rise of the neoliberal economy. Neoliberalism is

characterised by its emphasis on state-supported markets as the best and most efficient allocators of resources, its assumption that societies are composed of producers and consumers motivated by material or economic considerations, and its belief that competition is the primary vehicle for innovations (Coburn 2000: 138). This economic framework encourages a shift in state responsibility to citizens, also known as privatisation. At the same time the state is an integral player in the neoliberal project. Neoliberalism has opened up publicly funded services to private capital accumulation, and health has come to be articulated with words like 'productivity,' 'efficiency,' and 'choice' – health care is increasingly represented as a commodity (Leys 2010: 15). To an extent, efforts to privatise and commercialise health care have been very successful. With a shift to global capitalism in the 21st Century, states have ceded power to transnational corporations and a significant health industry has emerged (Armstrong, Armstrong and Coburn 2001: 6). However, this process has not taken place without significant resistance. There has been a complex and constantly changing relationship between formations of capitalist ideology that seek to commodify health, and movements of people to defend health care as a public good, or a human right. This study is an effort to explore one aspect of that conflict. Primarily focusing on medical students, I investigate a movement amongst physicians and future physicians in the United States and Canada to challenge the influence of the pharmaceutical industry in medicine and health care.

In neoliberal economies, the state is subject to the interests of the capitalist class and therefore is motivated by market interests and the drive to profit. This has been shown to have a negative impact on the overall health of the workforce. Health care is

not a commodity like cars or clothing, and thus efforts to subject it to market values by turning it into a commodity have not been successful (Armstrong and Armstrong 2001, Navarro 1993, Taft and Steward 2000). It is labour intensive, and those who need it most have the least amount of money (Armstrong and Armstrong 2001). The United States is an excellent example of a workforce that has been decimated by, among other things, a privatised health care system. The country spends a fifth of its national income to produce remarkably low overall health outcomes (Leys 2010, 1). Health and health care are increasingly defined as market commodities as a result of neoliberal reforms. When health care opened up as a field of private capital accumulation by neoliberal policy-makers in the early 1990s, pharmaceutical sales began to grow considerably, now accounting for 18 per cent of healthcare expenditures worldwide (Applbaum 2011). This context provides fertile ground for an industry that produces drugs for every kind of ailment or prospective ailment, and the industry is predictably thriving.

The Contradictions of Market-Based Health Care

Despite the neoliberal claim to be improving society and championing innovation, health care is suffering from the profit-motive inherent in this ideological model. The pharmaceutical industry claims that its success in accumulating wealth is related to its efforts to promote health. Its mission is captured in salient pharmaceutical company slogans: Johnson & Johnson is "Keeping children free of infection" (2012), Pfizer is "Working together for a healthy world" (2012), GlaxoSmithKline seeks to "Do more, feel better, live longer" (2012), and Novartis, simply "caring and curing" (2012). The industry markets itself as guided by an altruistic mission to heal – a mission that governments can easily endorse. Governments also endorse the idea that the expansion of

pharmaceutical markets and prescribing is based on innovative responses of biomedical science to new and growing health needs, what Abraham (2010) calls the "biomedicalism thesis" (290). Abraham counters that the industry does not just respond to need, but also creates markets for drugs. Pharmaceutical advertising and promotion grow at a much faster rate than pharmaceutical research and development in most Western industrialised countries (Abraham 2010: 292).

The contradiction of the industry rests within its apparent motive to heal in combination with its profit motive. It is clear from ample research into the social determinants of health that population health is connected to clean water, education, social assistance, etc. (Raphael 2004, Raphael 2006) and not only or even primarily to health care. The industry is focused on drugs and technologies, with the intention to sell. Clearly there are some industry innovations that achieve the objective to heal. There is no doubt that some drugs and technologies are incredibly helpful in addressing pain and disease, even to the point of saving lives. But the profits accumulated by this industry and the ways in which these profits are secured put its altruism in question.

A further contradiction lies in the industry's reliance on the ideological assumptions of the free market – that its profits are a result of innovative products and ideas which have gained currency in the free market because of consumers' needs and because of the value of the drugs. This obscures, first, the fact that the industry has experienced a crisis of innovation – there are few if any new life-saving drugs being produced (Angell 2004, Abrahams 1995, Leys 2010: 12) and second, the fact that the majority of the budgets of the top pharmaceutical companies are not spent on research and development but on marketing (Angell 2004: 19-20). As has been a tendency within

capitalism, the response of the industry to a crisis in accumulation is to undertake the conquest of new markets. In this case, medicalisation, the tendency to view conditions or behaviours as medical problems deserving treatment, has been used to construct new forms of illness in order to have a market for new forms of treatment (Moynihan 2005). The pharmaceutical company can label a condition or behaviour as a disease, claim to have the drug that will cure this disease, and then market that drug as essential for the maintenance of health. Recent characterisations of this phenomenon have termed it 'pharmaceuticalisation,' the increasing construction of human identities as behaviours to be managed by drug use (Healy 2012: 4) or as David Healy's new book has suggested, a more rampant version of this phenomenon is "pharmageddon" explained well in the following paragraph describing a typical group of people, at a restaurant, cinema or office:

> Unlike being diagnosed with a traditional medical illness, these people won't be diagnosed because they are suffering and take themselves to a doctor. They will be diagnosed because an apparatus will come to them, perhaps coincidentally when they are at their doctor's for something else, or perhaps soon to a supermarket near them, an apparatus that will show them that their 'numbers' are not quite right. It is only then that they will begin to suffer, either because of their discomfort and fear following a diagnosis or by virtue of the very real side effects triggered by the new pill they have been put on, a pill which has been marketed as an answer for any of us whose numbers aren't quite right (2012: 6).

In other words, medical care has been transformed in a way that quantifies human beings so that they can be sold a drug for profit. I argue that while the neoliberal ideology is in some measure distinct from the biomedical model of health, the two systems of thought work together effectively: the biomedical model contains elements that aid and abet the neoliberal ideology. The biomedical model of health is not a direct

and unilateral outcome of a capitalist ideology but rather it mutually reinforces a capitalist rationality that complements neoliberalism.

The Biomedical-Capital Fit

Our contemporary concept of medicine is embedded in our social structures and came about as the dominant form of health care at the time that capitalism was gaining prominence as a global economic system. The assumptions of biomedicine did not come straight from capitalism. This is demonstrated by Michel Foucault (1973), one of the more prominent theorists to understand biomedicine as a historical process. In *Birth of the Clinic* Foucault identified the genealogy of medicine as non-linear and constantly shifting. He traced the emergence of the biomedical model through an analysis of discourse, beginning in the 18th Century, when medicine shifted from a focus on health, to defining what was normal; medicine thus permeated all aspects of life. This was a medicine of organs, sites, causes, and eventually pathological anatomy where the corpse became the object of inquiry. Eventually medicine of diseases is replaced with the medicine of pathological reaction – organs are sick, not people (Foucault 1973: 150). Foucault's history of the clinic is essential to our understanding of the way that physicians now talk about bodies, how we have come to understand a particular approach to health as normal. But while his historical rendering of the clinic very attentively addresses the production of a certain kind of medical knowledge, it does not fully explore the driving economic forces underlying the emergence of *that* knowledge over any other. To understand the importance of how this particular understanding of bodies, disease and science emerged in the clinic and then came to be a pervasive

underlying set of assumptions about health, it is important to view that knowledge as emerging during the era of industrialisation.

An approach to medicine where people are reduced to organs and pathologies found particularly salient expression in the 19th Century with the growth of industrialisation and capitalist expansion. A powerful capitalist health industry emerged, particularly in the United States (Leys 2010: 2), and a corporate class developed "scientific medicine" or biomedicine, emphasising pathogens and disease and de-emphasising the social origins of illness. Armstrong and Armstrong (1996) outline the assumptions of this biomedical model in detail. First, the determinants of illness are primarily biological (20); second, the body is assumed to work like a machine, a collection of components separated for the purpose of diagnosis and treatment; third, health care is about curing illness or disability with drugs and surgery; fourth, medicine is scientific, and each disease has a single well-defined cause which can be corrected (22); and fifth, the doctor is the objective authority or the expert (23). Armstrong and Armstrong (1996) argue that the health care system is dominated by these assumptions not exclusively because they are the most effective means of improving health, but also because doctors fought to maintain power and hegemony over medical knowledge (23). They importantly acknowledge that these assumptions are neither consistent nor even; they are challenged, undermined, shared with other social groups, and transformed. For instance, the notion that the doctor is an objective authority has been challenged by patient advocacy groups arguing against paternalism, by public scandals where doctors have behaved unethically, and particularly apropos for this study, by the increasing power of the pharmaceutical industry to conduct research and influence prescribing.

Hans Baer (2001) uses Gramsci's notion of hegemony to talk about how capitalist ideas influence biomedical diagnosis and therapy. He argues that the biomedical model came about to bring working people to health so they could function as workers, but not call into question the conditions of living and working (Baer 2001). This does not mean that there were not important and innovative scientific achievements at this time. Baer emphasises that the history of capitalism and biomedicine is not linear, and that class struggle has meant that medicine has offered positive things for people – it is not only oppressive (2001: 6). Nevertheless, the history of the emergence of the biomedical model of health as the dominant model is inseparable from the history of capitalist accumulation and the advent of neoliberalism. This complex history is represented in the development of the health care systems in the United States and Canada, which while quite distinct, are now subject to similar pressures.

The Biomedical model of Health Care in the United States and Canada

While health care systems differ greatly in the United States and Canada, they are both importantly dominated by the biomedical model of health and by struggles over private or public funding models that are tied to the class interests of health care professions. The health care systems in United States and Canada can be broadly characterised respectively as private vs. public. As political theorists in this area have explored extensively, there are myriad contradictions and complexities in this characterisation of the two countries. First, in both countries health care is funded by a mix of public and private providers. In Canada public funding is far more substantial at approximately 70 per cent compared to the United States at approximately 45 per cent, although public

per capita spending in both countries is very similar. Second, there is not one monolithic health care system in either the United States or Canada. In Canada, provinces administer health based on their provincial priorities and local interpretation and application of the *Canada Health Act*. In the United States, health care varies significantly from state to state. The significant difference between these countries is that the United States lacks a universal health care system in the sense of everyone being covered who legally lives in the country.

The pressures that come along with the structural adjustments of a neoliberal economic system take different forms and are mediated and negotiated as labour organisations, non-governmental organisations, advocacy groups and the general public attempt to defend or advocate for public health care. In a Canadian context, Medicare is adamantly defended by the public as the issue that defines Canadianness (Armstrong et al. 2001:5). However, there is increasing pressure towards privatisation and an increasing portion of health care spending is funded through private sources. Government funding for public services has been cut drastically as a result of neoliberal economics. Because health care is an important component of Canadian identity, governments tend not to publicly attack it because it would be unpopular. However, public access is constantly subtly undermined through a thousand cuts and privatisation by stealth, through shifting health care costs to individuals, shifting health care delivery to the for-profit sector, shifting managerial practices to for-profit approaches, and shifting care responsibility to households and care work to unpaid caregivers. (Armstrong et al. 2004: 6, Armstrong et al. 2002).

Physicians in Canada gained power in the mid 19th century before there was a firm scientific basis for most aspects of medical practice (Armstrong and Armstrong 2010: 146). The Canadian Medical Association (CMA) used class connections to acquire state-sponsored control over admission to the profession, acquisition of skills and the right to autonomous practice (Armstrong and Armstrong 2010). Other health care workers such as nurses were undermined by the process of this organised class formation and by their gender. The Canadian Government is a single payer for services that doctors deem necessary; thus they maintain their authority. Most provinces have delegated their regulatory power to the medical profession, and physicians fight to maintain this control (Armstrong and Armstrong 1994). Biomedical science has been mobilised to legitimate the authority of the profession: "Science and technology also tended to enhance, rather than undermine, doctors' control as they helped them deliver better care and reinforced their claim that their work rested on scientific knowledge and their skill in applying it" (Armstrong and Armstrong 2010: 149).

Most western capitalist countries moved to a universal system of health care following the Second World War. At this time, Canadians were demanding security and the prevention of another depression (Armstrong and Armstrong 1996: 54). In 1948 the Canadian federal government announced grants that could cover half the cost of approved hospital construction as a step towards a national health insurance scheme (Armstrong and Armstrong 1996: 54). They introduced publically funded hospital insurance in the late 1950s, covering half the costs of specified services. Importantly, doctors were in charge of these institutions. Guaranteeing payment for hospital services as they existed at that point meant consolidating and reinforcing doctor's power

(Armstrong and Armstrong 2010: 25). All provinces had established publicly funded medical insurance along with the participation of the federal government by the 1970s. The way in which this coverage came about meant that payment was guaranteed for a range of procedures doctors considered necessary – their dominance and their assumptions about care had been supported and reinforced (ibid). This model laid the groundwork for the current Canadian health care system with its universal coverage of most hospital and doctor care, and is importantly very rooted in the assumptions of the biomedical model of health.

Health care in the United States has emerged in a fundamentally different way from the way that health care has emerged as a public service in Canada, although physicians have also gained professional dominance through the promotion of biomedical science. Navarro (1993) argues that the U.S. doesn't have a universal health program because of the weakness of the working class, the absence of a mass-based working-class party, very low levels of unionisation, and the strength of the capitalist class. The health care system in the United States has been privatised to a much more significant extent. Forty-eight million people in the United States have no health insurance, and 168 million people are underinsured (Navarro 2009). With the election of Barrack Obama, many Americans hoped for significant change in the health care system in the United States. With the support of a substantial movement for progressive change, Obama was elected on the promise of reforming health care. As the movement for health care reform has unfolded in the past few years, the possibilities for substantial change now seem limited. As critics have argued, by dropping the option of a single payer system, stressing reduction of costs and focusing on those with no coverage,

rather than on the most widespread problem of underinsurance, Obama has failed to meet the expectations of the electorate (Navarro 2009). While it is important to hold elected leaders such as Obama accountable, it is also important to recognise that the problems with the United States model of health care are deeply rooted, reflecting the country's political structures and the related influence of corporate capital (Maioni 1998). Thus change in the health care system will likely require broader political and economic changes – something Obama has not addressed.

The problem that is cited most consistently by governments in both the United States and Canada is that health care costs are rising. Often this argument is used as a justification for privatisation of health care, with the claims that it is more effective, efficient, and offers more choice. In part, the problem is defined in this way because both Canada and the United States have embraced neoliberalism. Public services must be justified in a context in which every jurisdiction of health care faces increased pressure to privatise and corporatise. This trend is apparent in the adoption of trade agreements such as the North American Free Trade Agreement and the General Agreement on Trades and Tariffs, where governments agree to structural adjustments involving putting public services on the market as goods to be bought and sold for profit. They are also encouraged to facilitate the globalisation of liberal market economics, where governments give up control of foreign investment, liberalise trade, deregulate their internal economies, privatise state services and compete with one another (Barlow 2002: 163). The market-rationality of this economic system has meant that the terms of the debate over health care are now over the 'high cost spiral' and general fiscal crisis. Privatisation is creeping into the picture as a solution to the crisis (Armstrong and

Armstrong 2010). In this context, government cutbacks and reorganisation of health care services has limited doctors' control (Armstrong and Armstrong 2010: 152). When health care is conceived of as a curative service for individualised bodies, these measures are rationalised as effective and efficient cost controls. The social determinants of health, or the nonmedical and non-behavioural characteristics influencing the health of populations, the societal factors affecting health outcomes, are erased.

While Canada's health care system is distinct from the U.S. in that it is publicly funded and universal, it is similarly reliant upon a biomedical model of health rather than a model of health care that is cognisant of the social determinants of health (Armstrong and Armstrong 1996). Despite the fact that under Canada's health care system it is very unlikely that any person would be refused admission to a hospital or treatment by a doctor based on ability to pay, it is not a strictly public system. Armstrong and Armstrong (1994) describe Canada's health care system as "a complex array of programmes at the municipal, provincial and federal level that have different sources of funding, operate under different forms of control and provide different kinds of services" (15). Neoliberal policies have been edging Canada's health care system towards privatisation and corporatisation. This trend has had an impact on the role of the physician.

The Physician and Medical Dominance

The effective relationship between the biomedical model of health and the neoliberal economy is partly due to the class interest of physicians and their defense of allopathic medicine as the only legitimate form of medicine. Marx posed that the bourgeoisie had

"stripped the halo" of every hitherto honoured profession, including the physician and the man of science. This interesting assertion suggests that the physician was once 'honoured' in a way that she or he is not now, and that capitalism has somehow ruined its reputation, even its purpose. The contradictions of the capitalist system run deep within the profession of the physician. While the physician appears to be guided by a universalist, politically neutral and altruistic ethos "to do no harm," in fact the history of the profession as a whole demonstrates that it has fairly consistently been a collaborator with or at the very least not openly resistant to capitalist forces. There is an important tension to be explored with regard to the physician and the pharmaceutical industry. On one hand, the relationship is as tight as ever. Physicians collectively have had a close association with the pharmaceutical industry since the formation of the American Medical Association. On the other hand, physicians are attempting to respond to a loss of public confidence in their authority by rescuing the profession from 'commercial' forces (Hafferty and Castellani 2009) and some individual physicians have always resisted.

The notion of 'medical dominance,' the powerful status of the medical profession, has been a featured topic of exploration in studies of modernity. A wave of critical work on health and medicine in North America began in the 60's and 70's with Eliot Friedson, Talcott Parsons, Irving Zola, Ivan Illich and others. While these theorists differ greatly, their common perception was that medicine as a social institution was gaining prominence and thus gaining moral and political power over people's lives through diagnosis and treatment. Some refer to this trend as 'medicalisation,' although medicalisation represents a body of theory that goes beyond the authority of doctors.

Theorists calling the authority of biomedical science into question focused almost exclusively on the medical profession. While their critique of the work of the medical practitioner is useful, it did not completely address how health and illness have been concepts that are socially created and maintained throughout history. Irving Zola (1972) called medicine an institution of social control rooted in an increasingly technological and bureaucratic system (487). He was mainly focused on the power of the profession to diagnose and treat, concluding that the way that illness is defined gives the medical profession an enormous amount of power and limits the freedom of individuals (Zola 1972: 500). Illich (1976) was also concerned with medical dominance, going as far as arguing that the medical establishment is a threat to health – resulting in a "medical nemesis." Like Zola he was concerned about the medical monopoly over health care and believed this to be a form of social control: "People who are angered, sickened, and impaired by their industrial labour and leisure can escape only into a life under medical supervision and are thereby seduced or disqualified from political struggle for a healthier world" (Illich 1976: 43). He even suggested that the rise of the pharmaceutical industry was having a negative impact on health. He argued that while it was fashionable to blame multinational pharmaceuticals for increases in prescribed drug abuse, prescription drugs differ from other commodities in that the consumer does not select them; it is doctors that prescribe drugs to patients (Illich 1976: 71). Illich (1976) doesn't exclusively blame doctors, but the society that has "come to believe that in health care, as in all other fields of endeavour, technology can be used to change the human condition according to almost any design" (73). Thus Illich identifies one of the key links

between the biomedical model and industrialisation. This form of the capitalist economy places great faith in the progress of technology.

Not every theorist of medical dominance made this connection to the economic system. Talcott Parsons' (1951) structural functionalist analysis of medicine focuses more specifically on the role of the physician suggesting that it is universalistic, functionally specific, and affectively neutral, oriented towards collectivity rather than self-serving, and opposed to 'commercialism' (434-435). He notes that the physician's relationship to the patient is characterised by "sharp segregation from the market and price practices of the business world, in ways which for the most part cut off the physician from many immediate opportunities for financial gain which are treated as legitimately open to the businessman" (464). Parsons is taking up a Mertonian definition of science which is guided by certain principles that lie outside of the market – principles, or 'norms' that guide the profession of medicine. These norms have been subject to a great deal of critique, for instance, by Mulkay (1991), who argues convincingly that the scientific community commands a repertoire that can be used flexibly to categorise professional actions differently in different contexts, in accordance with varying social interests (69). I argue that the context that is most consistent and pervasive through modern history is that of the drive for profit, and that physicians have developed the norms of science to suit that context because they stand to benefit from it. Functionalist analyses tend to neglect this influence, and the way that market forces penetrate the values and norms of scientific research. But while it is a problem to ignore the economic context of the development of scientific norms informing medical practices, physicians do sometimes aspire to ideologies that are contradictory to profit-

making and market-based rationalities. For instance, the dominant ideology informing medical education throughout the 1950s came out of the Flexner Report, promoting strict adherence to the protocols of modern science. More recently, evidence-based medicine, classically defined by one of its originators, David Sackett and colleagues (1996), as "the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients," was developed, in part, to reduce uncertainty amongst students and improve diagnostic skills. These movements, while perhaps not in direct opposition to capitalist ideologies, do not actively promote for-profit medicine. They demonstrate that competing ideological systems are present in the history of the profession in the United States and Canada. Importantly, I will argue, they can be co-opted by dominant ideologies, particularly if they begin to run contrary to the class interest of the dominant profession.

There is an association between the emergence of biomedicine as a hegemonic rationality and the establishment of physicians as a dominant professional class. Physicians have opposed a public health care system at various points in history. For instance, when the social democratic government in Saskatchewan attempted to introduce a plan to cover doctor's services, some doctors threatened to leave by striking and encouraging their patients to oppose the plan while other doctors supported the plan (Armstrong and Armstrong 1996: 59). In the U.S., the American Medical Association tried to sue the federal government when they introduced cost-containment measures for Medicare in 1984 (Cockerham 2009: 235). These historical references are not meant to suggest that physicians have simply opposed public health care in favour

of a business approach to health. Their motivations are complex, and include an effort to defend their autonomy and their idea of 'professionalism.'

While medicine has certainly been influenced by a capitalist ideology, individual medical practitioners have been exposed to the contradictions of health care under capitalism, and this has produced, in some, a struggle of consciousness. Some are quite aware of the tension between the idea that competition and privatisation are efficient and effective when it comes to every aspect of public life including health care, and the reality that neoliberalism and globalisation have a detrimental effect on health outcomes internationally (Navarro 2007). In some cases patients instigated this struggle amongst doctors by supporting health care reforms and by challenging the authority of the medical profession. Many physicians are uneasy with the idea of health as a purely profit-making venture, as demonstrated by the reiteration of the values of patient care, altruism and public health in literature promoting professionalism, and the movement opposing industry influence in medicine and research, each of which is discussed in subsequent chapters.

There are various possible roots of this unease. First, it could be seen as contrary to integrity of the profession as an objective and value-free scientific endeavour informed by a mission to serve the public. To an extent this is reflected in the current missions of various professional associations: American Medical Association's, "To promote the art and science of medicine and the betterment of public health" (AMSA 2011) and the Canadian Medical Association's, "To serve and unite the physicians of Canada and be the national advocate, in partnership with the people of Canada, for the highest standards of health and health care" (CFMS 2011). These credos importantly do

not mention the watchwords of neoliberal privatised health care, efficiency, choice, etc. Second, there has been a blow to the autonomy of the profession with the advent of neoliberalism, which while far from turning physicians into the proletariat has put their authority in jeopardy and perhaps allowed them to see allies in other more proletarianised health professions. Third, there have been recent movements that challenge a purely capitalist approach to the delivery of health care. The "anti-globalisation movement" in the early 2000s and the Occupy movement that began in 2011 criticised international free trade deals that could facilitate for-profit health care. The sentiment of these movements, particularly the former, with regard to health care, was expressed in documents produced by the labour movement in the U.S. and Canada, non-governmental organisations such as the Council of Canadians, the U.S.'s Physicians for a National Health Program, or even in Michael Moore's popular documentary about health care, *Sicko* (2007). A number of prominent figures within the field of medicine have taken up a critique of the industry in a way that demonstrates the complexity of their unease (Angell 2004, Abrahams 2004, Healy 2004, 2012). While many are not ready to fundamentally challenge the assumptions of the biomedical model of health, the contradictions of the pharmaceutical industry and the medical profession are causing important and possibly productive ideological rifts.

Physicians and Big Pharma

The relationship between physicians and the pharmaceutical industry has been conflicted since the emergence of the industry. The dominant class, represented by organisations such as the American Medical Association formed early alliances with pharmaceutical companies and campaigned against homeopathy and midwifery,

establishing allopathic medicine as dominant (Baer 2001: 47). However, Greene and Podolsky (2008) have recently historicised the relationship between the AMA and the pharmaceutical industry, demonstrating that there has been a debate over the relationship between academics and industry within the medical community since the 1950s. The 'detail man,' a pharmaceutical industry representative, began educating physicians about products from as early as the 1940s, and in the late 1940s the AMA agreed to a computerised registry that was advertised to the pharmaceutical and medical device industries as useful for market research (Greene 2007:744). Between 1951 and 1961, 4562 new prescription products were brought to market which represented a massive influx of new pharmaceutical products at the time (Podolsky and Greene 2011: 831). As early as the 1950s, physicians were being educated by pharmaceutical sales representatives, rating them the most important source of learning about new drugs (Podolsky and Greene 2011: 831). Podolsky and Greene point out that this "challenged the image of physicians as autonomous professionals insulated from the influence of marketing" (2011: 831). But not all physicians within the AMA accepted this practice. Indeed there were internal debates between those that wanted to strengthen ties between the pharmaceutical industry and medicine, and those who wanted to promote rational therapeutics and acknowledge the risks of new therapeutic compounds (Podolsky and Greene 2011: 832). In the early 1960s physicians reached a compromise, accepting drug promotion only if it was separate from medical education, and only if advertising standards were carefully guarded (Podolsky and Greene 2011: 832). As Greene and Podolsky argue, this became the prevailing normative model to guide future action. The pharmaceutical industry has grown in influence exponentially

since that time. From 1960 to 1980, prescription drug sales were fairly static as a percent of U.S. gross domestic product, but from 1980 to 2000, they tripled (Smith, 2004). Many physicians still hold that there should be drug promotion separate from medical education, but the degree to which this model had been upheld is debatable, particularly in the past couple of decades as the power of the pharmaceutical industry advances, making serious inroads in the education of physicians. Now, more than half the financial support for continuing medical education comes from commercial support (Greene and Podolsky 2008), particularly from pharmaceutical companies or their independent subsidiaries (Greene 2004). While physicians may feel as though they must retain autonomy from the industry in order to defend professional and ethical norms, the economic and political context of medicine has been a process of facilitating more commercial involvement in medical research and health care.

Neoliberalism has also put the authority of the medical profession in question. Since the 1980s there have been serious changes in the organisation of medicine; health policy has shifted from access to cost control and managed care has become central (Leys 2010, Conrad 2005, Armstrong and Armstrong, 2010). Peter Conrad (2005) argues that medicalisation is now driven by commercial and market interests more so than professional claims makers. He suggests that the pharmaceutical and biotechnology industries have become major players in medicalisation and that the commodification of medical care has made it more like other products and services, where people are 'consumers' who purchase health care on the market (8). "The drug companies are having an increasing impact on the boundaries of the normal and the pathological, becoming active agents of social control" he states (Conrad 2005: 11).

This means that the professional dominance once enjoyed by physicians is being eroded. Patients view themselves as consumers, and through practices like direct-to-consumer advertising, the industry has worked to cut out the middle man – physicians could be reduced to mere dispensers of drugs. In addition to this, in the United States physicians are reporting diminished income because of restrictive relationships with insurers and government agencies, increasing malpractice insurance premiums and inflated overhead costs to operate private practice (Fisher 2007). Jill Fisher (2007) labels this trend "medical neoliberalism" where health is commodified and the ideology of the market is paramount. Her description perhaps underplays the role of the State in ensuring that markets are able to rule, but her understanding of the impact of this system is important. She says that medical neoliberalism not only makes health a commodity, but commodifies the body, fragmenting it by focusing on specific problem areas to the detriment of holistic analysis (Fisher 2007). This critique has also been lodged against biomedicine, demonstrating that there are features of modern medicine that fit well with the current political and economic system.

Physicians are reacting to an apparent erosion of their autonomy and authority in various ways. Some attempt to function within the boundaries of the system. Pharmaceutical clinical trials in the private sector become the perfect solution to decreased revenues (Fisher 2007). Physicians make extra money as contract investigators for pharmaceutical trials, and patients with no or little health insurance receive limited access to doctor's visits, diagnostic tests, and experimental medications (Fisher 2007). Others openly resist the influence of industry. An example is "PharmedOut," an initiative from Georgetown University Medical Center, which

"advances evidence-based prescribing and educates healthcare professionals about pharmaceutical marketing practices." I argue that this emphasis on "evidence," which is common amongst health care professionals who are critical of pharmaceutical industry, comes out of an earlier movement amongst physicians to rely upon an ethical and professional duty to uphold the scientific integrity of their practice. These goals are laudable, but are also often presented as value-neutral at a time when broader forces have taken them up for expressly political purposes. This is discussed in more detail below, but first I discuss how some of the political movements orienting medicine in a particular direction, primarily neoliberalism and its accompanying corporatisation and privatisation, are also present in similar but different forms in the context of higher education.

The University and Knowledge Production

Like health care services, institutions for higher education have been transformed to accommodate industry, both structurally and ideologically. Market-based rationality and creeping privatisation are also present in the context of the university. The privatisation of post-secondary education is taking place through skyrocketing tuition fees, the commercialisation of research through partnerships with industry, and the corporatisation of campuses through food sales, advertising, and exclusivity contracts with corporations such as Pepsi and Coke. Since the introduction of the Bayh-Dole Act in the U.S. in 1980, along with its legislative precursors, the transfer of technology from the university to the private sector has accelerated considerably. This Act encouraged academic-industry partnerships that offer direct financial reward to individual faculty members in the form of consulting fees, royalties, and equity in companies while

simultaneously funding these faculty member's research, contributing to conflicts of interest (Cho et al. 2000: 2203). Sheila Slaughter and Gary Rhoades (2004) have developed "the theory of academic capitalism" to describe the corporatisation of higher education. The theory sees the process taking place amongst faculty, students, administrators and academic professionals using state resources linking higher education institutions to the 'new' economy (Slaughter and Rhoades 2004). This process is also about bringing the corporate sector into the university to develop "new networks that intermediate between private and public sector, and to expand managerial capacity to supervise new flows of external resources, investment in research infrastructure for the new economy, and investment in infrastructure to market institutions, products, and services to students" (Slaughter and Rhoades, 2004: 1).

The university has been organised to effectively work with the pharmaceutical industry. Indeed, as Slaughter and Rhoades point out, knowledge is not separable from corporations in the new economy (2004: 15). Colleges and universities are still distinct from corporations, but they are increasingly integrated into the economy, and those who cooperate are rewarded. "Autonomy, the preferred but perhaps always fictive position of universities with regard to capital and the state, becomes less possible" (Slaughter and Rhoades, 2004: 15, Doern and Stoney 2009 Polster 2002). In Canada and the United States national granting agencies for the sciences and medicine have wholeheartedly accepted that the private sector has a place in funding research. The orientation of federal funding agencies has increasingly turned toward commercially relevant research (Slaughter and Rhoades, 2004: 185, Doern and Stoney 2009, Polster 2002). For instance, in Canada, a senior executive member from pharmaceutical giant Pfizer

Canada joined the governing council of the Canadian Institutes of Health Research, a national granting institute, in 2009. This comes on the heels a steady decline in funding for CIHR and its precursor the Medical Research Council of Canada (Lewis et al. 2001). Industry has made up for a serious shortfall in federal funding. The pharmaceutical industry has become the largest direct funder of medical research in Canada, the United Kingdom, and the United States (Collier and Iheanacho 2002).

As Slaughter and Rhoades point out, taxpayers pay for federal research that professors perform in universities and effectively subsidise the corporations that partner with universities to develop technologies based on federal research. They then pay again when they purchase various high-priced pharmaceuticals (2004: 6). In Canada, there have been major changes between the Canadian Health Protection Branch (HPB) and the multinational pharmaceutical industry (Lexchin 2001). The private sector is now the major source of funding for HPBs Therapeutics Products Program, which regulates the drug industry (Lexchin 2001: 38). "By yielding to political pressure both from within and outside the country the federal government has let the interests of the pharmaceutical industry prevail over consumer interests when it comes to deciding about drug prices" writes Lexchin (2001: 41). Canada's drug approval process has been criticised on several grounds for: its lack of transparency; scientific data being fully or partially unpublished; lack of long-term monitoring for adverse effects for drugs that are on the market; less than rigorous drug labeling; and the fact that the pharmaceutical companies that are being investigated are paying for the process (Wright 2001). In the past 15 years regulatory authorities like the FDA, the supranational European Union, and national agencies across Europe have become increasingly dependent on fees

from pharmaceutical companies (Abraham 2007). These changes have had an impact on what kind of science is valued.

When funding and regulatory bodies favour industry, the knowledge that universities produce too often reflect the goals of industry. Slaughter and Rhoades argue that the universities have shifted from a public good knowledge/learning regime, to an academic capitalist regime (2004: 28). In the primary model, science leads to discovery of new knowledge that leads to public benefits (it is important to acknowledge that this model has also worked closely with the military industrial complex), and in the new model, the inventor faculty and corporations have claims that come before the public. One regime has not fully replaced the other – in fact the two exist at the same time, intersecting and overlapping (2004: 29). In the 1950s and 1960s U.S. funding for scientific research in the universities was provided by the Department of Defense, Department of Energy and National Aeronautics and Space Administration. By the 1980s information had assumed greater economic importance than the military industrial complex (2004: 48), and this was reflected in policy developments at an institutional and state level. The National Institutes of Health in the U.S. made medical substances and devices, along with biotechnology, key industries in the new economy (2004: 49). Networks within universities began to develop intellectual property policy, technology transfer, and economic development offices – "bringing their institutions into closer alignment with the new economy" (2004: 56).

There has been some resistance to these developments from students and faculty in universities across the U.S. and Canada. In Canada, the Canadian Federation of Students and the Canadian Association of University Teachers have taken a very

critical stance in opposition to the commercialisation of the campus and the privatisation of education (Turk 2000, National Graduate Caucus, CFS 2007). In the United States the student movement is not as cohesive, but there are elements of resistance in grassroots uprisings and also formally organised resistance such as the Pharmfree campaign by AMSA. In both the United States and Canada, the resistance that exists has not extensively grappled with how knowledge is shaped by neoliberal ideologies.

Evidence-based Medicine in Context

The knowledge that is produced in contemporary medical education is highly influenced by the EBM movement. David L. Sackett and colleagues (2000) define EBM as "the integration of best research evidence with clinical expertise and patient values" (1). Rodwin (2001) usefully expands on this definition to address the political dimensions of EBM as a movement "to evaluate the safety, effectiveness, and cost of medical practices using tools from science and social science and to base clinical practice on such knowledge" (439). Thus while EBM is a movement to bridge the 'best research' and clinical practice, it is also a political movement to challenge medical practice that is based on authority, tradition, and a physician's personal experience.

Sackett and colleagues attribute the wide-spread popularity of EBM to the daily need for valid information about diagnosis, prognosis, therapy and prevention, the inadequacy of traditional sources like textbooks for this information, the disparity between diagnostic skill and clinical judgment, and an inability amongst health care practitioners, it seems mainly physicians, to afford adequate time to find and assimilate this evidence (2000: 2). These problems seemed insurmountable until there were developments such as strategies for efficiently tracking down and appraising evidence,

the creation of systemic reviews, evidence-based journals, and information systems, and strategies of learning for improving clinical performance (Sackett et al. 2000: 3). These developments, and the coalescence as EBM as an approach to evaluate medical practices, have had a significant impact on medicine and its allied professions.

In some ways the current use of EBM reflects its original intentions to address the quality of medical evidence market principles and its appropriate uses. This movement to bring the best research evidence together with clinical expertise and patient values originally took shape in 1992 at McMaster University in Canada, led by Gordon Guyatt. But prior to that, it had origins in response to a RAND study[12] showing that a large proportion of routinely used medical procedures were considered inappropriate by professional standards (Chassin et al. 1987, referenced in Timmermans 2010).

EBM has been taken up in different ways, reflecting broader political forces, and some would say it has been appropriated. Political economists have pointed out that EBM became popular in the context of neoliberal cost-cutting and control strategies: "the notion, encouraged by EBM, of identifying the right person to do the right thing at the right time, fit very well with efforts to control how doctors practice – what they do with each patient and how long they take to do it" (Armstrong and Armstrong 2011: 153). Suggesting that they fit well is not the same as suggesting one causes the other. Rather, EBM has perhaps enjoyed the widespread popularity it has because it has in some ways been appropriated by a broader structure of forces.

EBM rests on notions of predictability, accountability and objectivity, and espouses that clinical practice guidelines should be based on scientific evidence.

[12] RAND is a research organisation that does work on social and economic policy issues.

Importantly this approach is sometimes put forth as 'apolitical.' Timmermans and Berg (2003) make the point that standards are inherently political – they transform practice. Evidence is ranked in relation to the gold standard, the meta-analysis of randomised clinical trials offering probability estimates of each outcome. They also argue that "EBM is part of a wider movement to generate uniformity and quality control by streamlining processes" (Timmermans and Berg 2003: 8). In a sense this movement could strengthen the autonomy of physicians. In an era in which the medical profession has come under pressure from spiraling health care costs, more emancipated patients/consumers, increasing attention to medical practice variations and information overload, physicians are responding with an effort to reclaim their expertise (Timmermans and Berg 2003: 16). However, it could also be used to undermine that authority. It became popular when Canadian hospitals were being pressured to control costs and adhere to market principles; thus doctors were required to justify orders for hospital stays on the basis of standardised protocols. Armstrong and Armstrong note that this can reduce the power of individual doctors (2010: 154). Physicians have supported EBM in relation to their claim to expertise, but when it comes to everyday practice of EBM, the story is more complicated. Clinical judgment can be questioned when it is not supported by a specific kind of evidence, or where there is no authoritative evidence defined in the framework of EBM to support it.

While EBM is has been subject to substantial critique (Hill 2000, Charlton 1998, Jones and Sagar 1995, Harari 2001, Upshur et al. 2001, Kenny 1997, Dobbie et al. 2000, Naylor 1995, Grahame-Smith 1995), it is increasingly being adopted as an essential part of the curriculum in medical schools in the United States and Canada.

The Medical School Objectives Project, an initiative of the Association of American Medical Colleges, reports that physicians must apply the principles of evidence-based medicine and cost effectiveness in making decisions about the utilisation of limited resources [13](AAMC 1998: 8, referenced from Timmermans and Chawla, 2009: 139). The Association of Faculties of Medicine in Canada recently published a vision for medical education in Canada, which includes a recommendation to build on the scientific basis of medicine: "health research must be part of the culture of medicine, both in terms of its contribution to evidence-based practice and as a component of the careers of medical practitioners" (AFMC 2009). Ninety-five per cent of U.S. internal medicine residency programmes have journal clubs that meet to critically evaluate the clinical application of recent articles in medical literature, and 37 per cent of U.S. and Canadian internal medicine programmes have dedicated time for EBM (Timmermans and Chawla 2009: 139).

Organisations with a very critical stance on the pharmaceutical industry's practices in relation to medicine, such as the Canadian Therapeutics Initiative and PharmedOut, advocate evidence-based medicine as a check on industry 'bias.'[14] Even AMSA's Pharmfree campaign, which calls for the removal of conflicts of interest in medicine, calls for evidence-based medicine and "promotes the conscientious, explicit and judicious use of the current best evidence in clinical care" (AMSA 2012). This focus on EBM as a solution to industry bias raises questions about whether research that is considered 'evidence-based' is influenced by the pharmaceutical industry.

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[13] The way EBM is addressed in the medical curriculum in the U.S. seems to be removed from the origins of EBM at McMaster. Participants in this study from the U.S. did not know that it originated in Canada.
[14] See AMSA's website, "The Campaign" promoting evidence-based prescribing, PharmedOut's home page promoting evidence-based prescribing and evidence-based medicine, and the Therapeutics Initiative's home page promoting evidence-based drugs.

As Joel Lexchin (2011) has recently pointed out, from 1994-2003 the vast majority of the most cited randomised controlled trials, the gold standard of evidence-based medicine, received funding from industry. He explains the various ways in which bias can enter into the RCT, a supposedly neutral and value-free method of inquiry. These include companies using low doses of a comparator agent to make their drug seem more effective or using high doses of the comparator to make their drug appear to have fewer side-effects, keeping unfavourable results from being published and publishing favourable ones more prominently and often, reinterpreting data submitted to regulatory agencies, and distortion of the meaning of results and conclusions that are more favourable than are warranted from the data (Lexchin 2011). In a survey of 192 authors of clinical practice guidelines, about 60 per cent reported that they had financial ties to the companies whose drugs were considered (Choudhry et al. 2002). As Lexchin has put it: "bias can come from many sources, but no individual or organisation has the resources and the ability to influence the entire process the way that the pharmaceutical industry can. In this respect, the industry is in a class of its own" (2011). Here, there is an important power dynamic with respect to who defines EBM, how, and for what purposes.

Abrahams explores how evidence is defined in an era of cost-cutting measures to agencies meant to regulate the safety and efficacy of pharmaceutical drugs. No country in the world requires pharmaceutical firms to demonstrate that their new drugs are more efficacious than established therapies already on the market (Mrazek et al. 2004). Manufacturers just have to provide evidence that the drug has greater efficacy than a placebo in double-blind controlled trials. As Abraham argues, this suits the

pharmaceutical industry, because it is easier to demonstrate that a new drug is superior to a placebo than to show efficacy against an established therapy (2007). A manufacturer can run a large number of small placebo trials and by chance a few could prove more effective than a placebo. The company can then highlight those trials showing efficacy, while downplaying or ignoring the majority of trials that do not show efficacy (Abraham 2007). As long as the drug is demonstrated to be effective in a randomised controlled trial, it meets the standards of evidence-based medicine. Thus the 'evidence' so closely guarded by physicians is deeply embedded in the industry's logic. Furthermore, in *Pharmageddon*, Healy makes a distinction between evidence about the benefits of drugs and evidence that might be best for patients (2012: 3). The unstated assumption that real evidence exists in the realm of drug trials obfuscates the fact that there are many illnesses and treatments that do not require drugs and that don't even factor on the EBM radar. Healy is very critical of the trend amongst medical professionals to offer up EBM as the best means of reining in the pharmaceutical industry, when the pharmaceutical companies are amongst the biggest proponents of EBM (2012: 13).

> In a world where corporations can market bottled water to us, it appears to have occurred to virtually no one to ask how such marketing power might be applied to drug therapies. If the goal of medical marketing is to find out what doctors want in order to get the doctors to sell the product to themselves – and it is – and if doctors say they are influenced by the evidence above all else – and they do – it should not come as a surprise that industry might set about ensuring the evidence points in the right direction (13).

Ultimately if we accept that evidence is not value-free, we should then explore which values are contributing to our notion of the 'best' evidence, particularly in a context where industry reaps such profitable rewards. Furthermore, industry's role in shaping

medical evidence raises important discussions about science as an objective measure of nature and clinical practice as the objective application of evidence to patient problems.

Science in the Context of Capitalism

There have been numerous critiques of the influence of a for-profit mentality on scientific research in medicine. Amongst those that are put forward by physicians there are few that are deeply critical of the foundations of scientific medicine. Some critics rather uncritically accept that science is a neutral and value free endeavour in service of the public – that for-profit health is merely an abomination (Farmer 2005, Abramson 2004). Here we see a discourse that relies upon unquestioned assumptions about the truth: "When drug companies control publication of results or simply delay unwelcome findings, truth is partially disclosed and therefore compromised" (Lewis et al. 2001). This discourse suggests that when properly used, the scientific method can access the truth – the problem is that the method has been corrupted by profit. Academic work in the field of Science and Technology Studies has been incredibly useful in helping to challenge the assumptions of scientific medicine. This field offers methods for understanding how science is a marriage of social and material forces in every context.

Over the past five years, the pharmaceutical industry has received a significant increase in attention in the social studies of science.[15] The primary reason is that the industry has a significant amount of influence in the way that medical science is understood, carried out, and applied. Analyses of the industry have ranged from pointed critique (Greene 2004, Fishman 2004, Sismondo 2009, 2008) to scathing exposé

[15] For example: Petryna 2007, Abraham 2007, McGoey 2007, Lakoff 2004, Greene 2004, Oldani 2004, Fishman 2004, Fox and Ward 2008, Fisher 2007, Lexchin 2001, 2003, Healy 2004, Mirowski and Sent 2008

(Fisher 2009, Healy 2004, Angel 2004). One of the primary themes in this work is that the market is driving medical research - a phenomenon called corporate science or commercialised science. This is not a new phenomenon. Mirowski and Sent (2008) argue that the commercialisation of science has shaped the practice of research and the contours of research and its outcomes for decades. They discuss developments in the U.S. economy during the 1980s which saw the formation of the GATT and TRIPS, along with an overt attempt to bring universities in line with corporations, resulting in the spreading practice of outsourcing corporate research (2008:658). As Mirowski and Sent argue "Who pays whom, and who answers to whom, has consequences for the sorts of knowledge fostered" (2008:671).

In the context of such a powerful pharmaceutical industry, scientific knowledge does not just serve commercial interests by creating drugs for profit, but also in the way scientific norms are defined and taken up in practice more generally. Several theorists have done detailed work to trace the close relations between industry and scientific research. Jeremy Greene (2004) argues that the 20th Century has seen significant expansion of the pharmaceutical industry and closer structural relations between medical practices and pharmaceutical companies (272). David Healy's (2004) work exposes pharmaceutical company outsourcing of medical writing to agencies that produce favourable medical reporting on drugs (230). These works attempt to understand the difference between marketing and research and between the pursuit of science and the pursuit of profit, distinctions scientists seem to have a vested interest in protecting.

Work in the field of Science and Technology Studies helps investigates the distinctions between marketing and research by demonstrating how scientific knowledge is informed by human interests. Sergio Sismondo's (2009) work on publication planners discusses exactly how they distinguish between marketing and science. He says publication planners "understand that their work has marketing value and is supported because of that value, but they see a clear distinction between what they do and what marketing departments do" (180). Planners portray marketers as riding roughshod over scientific standards and being unconcerned with the scientific data (Sismondo 2009:180). Planners, on the other hand, believe in the 'rules' of science – so that pharmaceutical company sponsored trials are no different from other trials, as long as they meet the standards of science (Sismondo 2009:184). Sismondo (2009) argues that pharmaceutical company research is not inferior or different from other medical research – companies make choices in running trials, interpreting data, and establishing medical science, and in the messages they convey in papers and presentations (193). He emphasises STS's commitment to symmetry noting that science is choice-laden. He doesn't want us to conclude that the work of pharmaceutical companies is not science. It is, just in a new corporate mode (Sismondo 2009:193). Sismondo makes an important point here, which disrupts the discourse of some critics, like Healy, that good science is objective and only values data[16], and bad science is corrupted by industry bias. As Sismondo insinuates, science has always been infused with human values, and I would add that these values have been ensconced in the logic

[16] As Healy puts it, "Science is not value free. It values data. Science is not about publishing the appearances of a scientific experiment, it is about replicable data. But for some reason the normal rules of science appear to be suspended in proximity to a pharmaceutical company" (2010: 116).

of capitalism since industrialisation. But there are clearly competing value systems in the pursuit of scientific knowledge, which speak to an underlying tension between science as a market commodity or a public good, or some kind of blend of these two.

In all of these works there is an underlying discussion about the extent to which the market has been, and should be, an integral part of scientific research. Most suggest that there are negative consequences to the relationship because of the role of profit in driving research questions and interpreting results. But further work is needed to understand the way that the market has participated in research historically, and how this relationship is situated in broader political and economic structures. Lakoff (2004) argues that "The fortress that is supposed to guard against the crude logic of profit – biomedical expertise – is itself ensconced in the market" (255). This statement is an important starting point for further investigation into the way that biomedicine is understood and put into practice in the context of capitalism.

Lave and Mirowski (2010) argue that neoliberalism has dramatically shifted the relations between public science and private profit. They suggest that a political economic analysis needs to be a more prominent part of the STS toolkit. In keeping with an STS perspective they do not argue that science has ever been free from political influences. Rather, they suggest that there is something new and different about neoliberalism, which has resulted in a substantive change to scientific practice (Lave and Mirowski 2010). Under neoliberalism, government funding has been rolled back and there has been a re-organisation of public research universities; teaching is secondary to knowledge that leads to profits; there is a dissolution of the scientific author as

demonstrated, for example, by the 'ghost-author'[17]; and aggressive promotion and protection of intellectual property in hopes of gaining commercial value from knowledge, which impedes the production and dissemination of science (Lave and Mirowski 2010).

Corporate science must be analytically distinguished from previous models if we are to understand it fully. Just as Slaughter and Rhoades (2004) have distinguished the knowledge/learning regime from the academic capitalist knowledge/learning regime in the realm of education, in the realm of health and medicine we must distinguish biomedical from commercialised science. A bias towards finding a 'cure' in the biomedical model is different from a bias towards making a profit from illness in the commercialised science model. Both of these models are infused with human social interest, and the following chapters illuminate how future physicians define their particular interests.

Conclusion

Health care is becoming a business for profit, but not without the social actors who carry out this mandate in the practice of medicine. The consciousness of these actors is uneven. Physicians and physicians in training have to make important clinical decisions daily. In the context of their everyday practice of medicine, they sometimes defend the elements of a profit-motive in medicine, and they sometimes resist it. For the most part they try to do a good job of providing medical care amidst the constraints of the context of contemporary medicine. I concentrate on people who are learning to doctor because the profession remains a very powerful centre for determining hegemonic ideas about health and medicine, but also, contradictorily has been subject to encroaching threats to

[17] A ghost author is an individual who has made substantial contributions to a scientific study but has not been named as an author. Sometimes a ghost author or 'ghostwriter' is paid by a pharmaceutical or medical devices manufacturer.

its dominance, in some ways through neoliberal ideologies. While the threats to medical dominance can lead some to feel that it needs to be saved, or re-established, those threats also carry the possibility of inspiring links to social movements that are critical of the underlying political and economic structures that help to inform medicine. It could also lead to a possible critique of those structures: especially neoliberalism, the capitalist mode of production, and their correspondence with the biomedical model of health. The age in which doctors were primarily white men who used their privileged position to reinforce their power as specialists seems to be shifting. Increasing numbers of women and members of racialised or immigrant communities are graduating from medical school – this combined with a challenge to the dominance of the profession opens up the possibility for doctors to see themselves as allies of popular struggles for health care (Armstrong and Armstrong 2010). Armstrong and Armstrong argue, "As the burden of care is increasingly shunted to the household, while hospital care is increasingly industrialised, the possibilities for combining healthcare workers' struggles with popular activism to extend and democratise public health care is greater than ever" (2010: 164). Furthermore, it is possible that the starkly for-profit aims of the pharmaceutical industry, exposed by activists and academics within and outside of the medical profession, is precipitating a shift in consciousness amongst some medical students. I investigate this shifting consciousness in a series of qualitative interviews in order to understand the nature of the unease and the potential for change. While physicians and future physicians are perhaps not the vanguard of revolutionary change, their critiques are points of access for movements to challenge the corporatisation and commodification of health. These points of access need to be assessed thoroughly in

order to be able to link to other communities of resistance. They also need to be critiqued internally and externally so that they can address important contradictions and reflect carefully on the source of the problem and the appropriate solutions.

Health care institutions in the United States and Canada have emerged in the thick of all of the contradictions of capitalism. While the trend in a capitalist economy is for everything to be subjected to the market, multiple forces have existed at different historical moments in the history of the 19th and 20th centuries to challenge, or at least complicate the drive for profit in the health sector. One could argue that the very emergence of a health sector is a product of capitalism; however, whether it is publicly controlled service organised as a human right or a privately controlled service that is a privilege for those who can afford it is constantly being negotiated. The pharmaceutical industry has been the focus of critique as a stark example of the profit-motive in health care. It is having a powerful effect on the way science is produced and understood, and in turn, is shaping the very foundations of allopathic medicine. This investigation sheds light on how the pharmaceutical industry is influencing the people who are entering into the profession of medicine. The term 'influence' can suggest that it is pressing down on medical students and leaving them no choice but to adapt. Sometimes this is exactly how the participants of this study describe the experience of being educated in the context of 'pharmageddon.' However, this is not an entirely accurate depiction. As interpretive sociologists have long noted, social actors do not simply inherit a social world, they create one. The participants of this study do not simply absorb medical education. They enter with ideas about who they are and what they want; they question discourses and assumptions; they organise amongst each other and with external

groups of students, physicians and citizens; they write about their experiences; they complain; they create.

Chapter Three: Methodology

This study investigates the influence of the pharmaceutical industry on medical education through qualitative inquiry. I used interactive and humanistic methods, involving the participants in data collection and building rapport with those engaged in the study. The study is emergent, changing as I learned more about the subject throughout the research process. It is interpretive, meaning that data is filtered through a personal lens; I view social phenomena holistically and systematically reflect on who I am in this inquiry with attention to how my personal biography shapes the study (Creswell 2003). My primary theoretical lens is political economy, which means that I see participants' perspectives as a part of a broader political and economic context where material forces and power relations have an impact on actors' experiences, choices, and ideas.

My methodological orientation seeks to uncover the interplay between social actors as individuals that create and shape the social world, and the aspects of the social world that feel external – the structures. I draw upon the interpretivist tradition in sociology, which foregrounds human beings' interpretive understanding of their social world through their own subjective reality. I acknowledge that I am a part of the social world that I am studying, and that I am both attempting to draw on my knowledge of this social world as well as seeking to make the familiar strange in an effort to see the world from the perspective of the participants of this study.

To engage with participants about how they interpret the world around them I borrow from symbolic interactionism, which looks at the creation of meaning in the daily interactions of social actors. Thus I consider how participants take on social roles,

reflect on their actions and internalise social expectations. In *Boys in White*, Becker and colleagues drew from the work on symbolic interaction to understand how the conscious aspects of human behavior are related to the individual's participation in group life (Becker et al. 1961: 19). Following one particular aspect of Becker and colleagues' approach to studying medical education, I focus on aspects of students' experience of medical school that produced conflict and tension, because that seemed to reveal basic elements of their expectations and assumptions. My study focuses on students who are critical of industry to take up that instance of frustration, and from there, understand the sources and outcomes of the conflict they encounter. Symbolic interactionism is useful as an approach to grasp the intentions behind human behaviours and to gain a deeper understanding of how our assumptions about the social world influence our decision-making. However, this approach is limited when it comes to understanding how those assumptions and behaviours fit into a broader political and economic context. To understand how dominant ideologies are present in the formation of social values and behaviours of human beings, and also to understand the driving forces behind those dominant ideologies, I turn to political economy. Dorothy Smith's work has been instructive in bridging the everyday experiences of social actors and the broader hegemonic ideas of a capitalist society.

I look to the work of Dorothy Smith to understand how to move between the everyday interactions of social actors, and the 'extra-local relations' that are shaped by and also influence those experiences, the political economy. I attend to the standpoint of participants as a 'window into an institutional form.' I try to understand the ruling apparatuses, "those institutions of administration, management, and professional

authority, and of intellectual and cultural discourses, which organise, regulate, lead and direct, contemporary capitalist societies" (Smith 1993: 2). While my work is not an institutional ethnography, I pay attention to text-mediated relations by drawing in analysis of campaign literature, critical works on industry influence, and regulatory documents addressing conflict of interest in medical education. These texts act as authoritative forms of knowledge influencing how students learn about medicine.

I also want this research to encourage further debate amongst medical students. My work employs the normative politics of immanent critique, both in foregrounding tensions and/or contradictions within authoritative forms of knowledge and in paying attention to broadening public discourse about dominant ideology (Mykalovskiy et al. 2008:195). I use experiential accounts of medical students to point to tensions in the claims of neo-liberal approaches to health care. This can expand the debates on pharmaceutical industry presence in medicine through the use of critical insight from those who are being educated in medicine within the context of a neo-liberal economic system. Medical students are at the bottom of the hierarchy of medical training and expertise, and this sometimes means that their voices are not heard, both within medical practice, and within sociological work about medicine. This study gives medical students a voice and demonstrates that they have agency.

Methods

Interviews: I interviewed medical students who were critical of pharmaceutical industry influence in medical education in the United States and Canada. My aim in this study is not to make statements about what is typical of medical students; thus I do not employ a sampling procedure which is representative of this entire population. My investigation is

an effort to understand industry influence in medical education as a social relation from the perspective of students who are critical of industry.

I wanted to begin my study by speaking with students who were engaged in an effort to critically address industry influence in medical education. Thus I made initial contacts through the American Medical Students Association (AMSA) in the United States, in order to gain a better understanding of their engagement in the Pharmfree campaign. I found that students who got involved with AMSA for a number of different reasons, sometimes just to be engaged with a national network of medical students, discovered how the industry influences medical education through the organisation's campaign priorities and outreach. I then looked to other organisations that represented medical students to see if they had also identified this particular issue as of importance for medical students and made it a priority for their local and national organizing. I spoke to students from The Canadian Federation for Medical Students (CFMS) and Students for Medicare in Canada. I emailed the representatives of these groups and requested that I attend their general meetings. I did not assume that a student who was involved with an organisation representing medical students would be critical of the pharmaceutical industry but rather that an organisation representing medical students might identify this as an important issue for medical students, thus creating a political awareness among students on the topic of pharmaceutical industry influence. At these meetings I introduced myself to attendees through organisers and on my own, distributing information about my study and passing around a "sign-up" sheet so that I could contact them for an interview to take place during the meeting, noting that I wanted to talk to students who were critical of industry influence and allowing

participants to self-identify this way. I used snowball sampling to find other participants, who were part of these three organisations, or other organisations, or no organisation, and interviewed them using Skype. For each interview participant I obtained informed consent in accordance with York University's research ethics guidelines for studies involving human participants (See Informed Consent in Appendix 1).

I investigated participants' perspectives on the presence of the industry, how it affects education, how it affects their perception of medicine, their organising to address the problem, and what they view as the solution. I also asked a series of demographic questions over email. The interviews were qualitative, beginning with a question on their general understandings of the pharmaceutical industry and its effect on medicine.

I present findings based on qualitative interviews with 50 medical students engaged in resisting pharmaceutical industry influence in medical education in the United States and Canada. I attended the AMSA 60th Annual Convention "Celebrating Passion, Professionalism, Pride" March 11-14 2010 at the Disneyland Hotel in Anaheim, California, and spoke to 19 students who were active in the Pharm-free Campaign. AMSA has been active for over 50 years and represents more than 67,000 medical students, premedical students, interns, residents and practicing physicians from across the U.S. The Pharm-free campaign promotes evidence-based prescribing, "the conscientious, explicit and judicious use of the current best evidence in clinical care also independent from institutions and individuals with a financial interest in physician prescribing; pharmaceutical innovation, by promoting safe and effective new drugs, and access to medicines" (AMSA 2012). I then attended the Spring General Meeting of the CFMS from April 30 to May 1 in St. John's, Newfoundland and spoke to nine medical

students attending the conference. The CFMS is the representative voice of Canadian medical students to the federal government, to the public, and to the national medical organisations, representing over 7,500 medical students at 14 Canadian medical schools across the country. Finally, I have spoken with students affiliated with Students for Medicare, an interdisciplinary coalition of students and practitioners of nursing, midwifery, medicine, public policy and other disciplines mainly based in Toronto. This group "advocates for maintaining and strengthening a publicly-funded, not-for-profit health care system" (Students for Medicare 2012). I attended meetings of this organisation in May of 2010 and 2011, and interviewed eight students either at the meetings, or after the meetings over Skype. In addition to this, I have been in touch with 14 more students through snowball sampling and by sending out call-outs over the CFMS and Students for Medicare list-serves, including an interview with a member of a small Université de Montréal group called Le CLAMP, or groupe de réflexion sur l'impact du marketing pharmaceutique.

I began with medical students in the United States because through AMSA, where there is a formal campaign organised to critique the presence of the pharmaceutical industry in medical education. They created a Pharmfree Scorecard, which grades medical schools on the presence or absence of a policy regulating the interactions between their students and faculty and the pharmaceutical and device industries and assesses the content of policies at medical schools throughout the United States. These interviews offered insight into the extent to which the industry has affected medical education – to the point of inspiring a national campaign. I was then able to discuss the campaigns led by American students, with students in Canada, who

have not engaged in the same level of organising. I talked to Canadian students about the experiences of students engaged with the Pharmfree campaign and asked them to reflect on what this movement means for their experiences in Canada. (Questions can be found in Appendix 2).

Respondent Demographic Information

I interviewed 50 students, 21 from the U.S. and 29 from Canada. There were 24 men and 26 women. Forty-three responded to demographic questions (listed in Appendix 3). The age of these respondents ranged between 21 and 36, the average being 27.9 years old. In response to the question: To which ethnic or cultural group(s) do you belong?, 19 identified as white or Caucasian, but two of those students added another ethnicity as well, such as "Caucasian/South American," and "Caucasian/European"; 5 answered "South Asian," others answered "Francophone" (2), "Francophone/Ethnic Mix" (1), "Anglo" (1), "European American" (1), "Canadian" (1), "Asian(Indian)" (1), "Chinese" (1), "Punjabi" (1), "Middle-Eastern" (1), "Pakistan/Indian?" (1), and 5 responded "N/A" or "None." Three respondents did not answer this question. Thirteen identified as visible minorities; four identified as LGBTQ; Seven identified as Francophone; none identified as Aboriginal; one identified as having a disability, and none listed an "Other" category of identification. For 15 of these respondents their first language was not English; five of them listed French as their first language; others listed Portuguese, Bengali, Malayalam, Arabic, Punjabi and Hindi. Their level of study, previous professional degrees and undergraduate degrees are listed in Appendix 4. Most students were in their later years of medical school. Three were in their first year, 11 were in second year, six were in third year and 12 were in year 4/5. Seven students were doing their residency and three

were doing post-graduate work. Six had done a previous degree in health administration, health policy or public administration.

Data Recording Procedures

For each qualitative interview I used a digital recording device. I took detailed field notes, and developed a cohesive audit trail by using a reflexive journal to log logistics of my study, personal catharsis and reflection on values and interests, decisions and rationales for methodology, and emerging questions (Lincoln and Guba 1985: 327).

Data Analysis Procedures

I took detailed field notes when attending meetings of medical students. I transcribed all interviews. From these notes and interviews I developed descriptive codes. During the coding process I continually arranged the codes into emerging thematic categories. A list of codes by thematic category can be found in Appendix 5.

In coding I attempted to stay close to the data, identifying the themes as they were articulated by students. By doing this I allowed the data to yield far richer results than if I had coded simply based on the questions that I asked. At the same time I did not use coding to parse out discrete categories to be evaluated independently of each other. I see the categories as interrelated, and thus they are most meaningful in relation to each other. For instance, when students talked about the objectivity of science it was always in relation to explaining why they believed that evidence-based medicine was an important correction to industry bias in medical research. These three subjects, objectivity of science, evidence-based medicine and industry bias were interrelated. While coding helped to identify trends and themes, it did not allow for the comprehensive evaluation of the stories that emerged from my data. Thus while I found

coding helpful in staying close to the data and attending to the unexpected as a measure against my own bias, I also listed my hunches as they developed over the course of my investigation, meaning that if I had a feeling that there was a theme emerging, I would write it down. I took notes throughout the project on what I thought was emerging, and those notes helped to inform the kinds of questions I asked in later interviews.

I read through all of the interviews and wrote a brief preliminary analysis based on my impressions of the overall trends and themes emerging from the data. I then coded all of the interview data using Nvivo. Setting the preliminary analysis aside, I organised segments of interviews by the codes. For instance, I would have all of the segments of interviews about "anti-pharma organising" in one document, and I would carefully read each of these interview segments to write a paragraph about that descriptor. When I had come up with paragraphs on each coded item, I revisited the chapter of my impressions and fleshed out sections, added to my analysis, deleted impressions that did not seem to be borne out in the interviews, and generally gave depth my overall impressions with the actual words from the participants. Thus two simultaneous processes were underway – on one hand an attempt to see the data as a whole and listen to my hunches about what was emerging, and on the other hand, a close dissection of each interview separated into descriptions of the information through codes. When these two endeavours were put into a conversation through the writing process I was able to both attend to details and offer an analysis about some of the overall trends taking place. When my overall analysis was straying from what the participants actually said I was able to refer to the sections of description that emerged

from coding to ground my analysis. At the same time, when I was attempting to make sense of my detailed descriptions of the codes and having difficulty, I was able to refer to my overall impressions and decide if parts that seemed to not fit were in fact outliers, or elements that deepened my analysis.

In conclusion, this qualitative inquiry relies primarily on interviews to understand what kind of critical consciousness medical students develop about the influence of the pharmaceutical industry in medical education and where this leads. I do this through the use of several different theoretical and methodological approaches. Drawing from symbolic interactionism, I pay close attention to participants' own articulations of their values in relation to medicine and their assumptions about the pharmaceutical industry. I speak to them about their activities in order to gain an understanding of the conflict they are seeking to address, and the way in which they address the conflict. I also see these participants' assumptions and experiences in the context of a political and economic system fundamentally oriented towards profit-making. I see actors' articulations of their experience of medical school and the conflicts they face as medical students as a window into that broader economic and political system, drawing on the work of Dorothy Smith. While I primarily rely on participants' discussions of their values and actions, I also attempt to understand how they interact with the material world to produce an understanding of 'evidence,' a concept that is quite central to an understanding of medical student resistance to pharmaceutical industry influence.

The strength of the above approach is that I am able to see participants' experiences in the context of a broader political system and offer some understanding of the interplay between hegemonic ideas about commercialisation of medicine, but also

about resistance to those hegemonic ideas. The weaknesses of this study include a limited sample of participants, both in size and selection. A larger sample could yield more generalisable results about students who are critical of industry. A sample of medical students who did not identify as critical of industry could have yielded results about the student experience of medical school more generally. It is also limited in that it captures only one piece in the complex dialectical relations of capitalism both within medicine and within higher education.

Chapter Four: Teaching Conflict: Professionalism and Medical Education

Physicians, medical researchers, medical educators and students have sometimes resisted the influence of the pharmaceutical industry in medicine. The central criticism these actors have offered rests on the notion that physicians, who are guided by the ethics of their profession, and the industry, which is guided by profit, are in conflict. This criticism has effectively given way to a broad discussion about Conflict of Interest (COI) in medicine and medical education and resulted in policy and regulatory documents that frame COI as the problem and outline measures to address this problem. Conflict of Interest is not a new topic for physicians, but dates back to the very inception of the profession. Some would argue it is a fundamental tension of the profession because of the commitment to healing others balanced against self-interest (Rodwin 1993). My work addresses a contemporary context, where the powerful influence of the pharmaceutical industry has been the most salient and pressing example of COI for medical professionals. In this chapter, I problematise the way 'the conflict' has been characterised by physicians, regulators and students, arguing that it individualises the relationship between physicians and industry, too neatly delineates between the two entities, and reduces the network of social, economic and political relations to this one dilemma.

Students engaged in efforts to resist industry influence have taken up this call for attention to COI. AMSA's campaign is organised around evaluation of COI policies at medical schools across the U.S. CMFS has also decided to use this tactic, calling for more stringent policies at Canadian medical schools. This is a relevant priority given a study I participated in recently with Adrienne Shnier, Joel Lexchin, Barbara Mintzes and

Annemarie Jutel evaluating conflict of interest policies at Canada's 17 medical schools, where we found that over half had either no policy or a permissive policy (2013). Students are using conflict of interest policies as an important point of access into a debate about the influence of the pharmaceutical industry. The evaluation of or creation of conflict of interest policy has the potential to open the discussion of how the pharmaceutical industry is present in medical education and how it can be addressed concretely through restrictions or guidelines. In focusing on COI in their campaigns about industry influence, students have accepted a framework outlined by the critics of industry from within medicine. The work of the critics of COI could be considered an informal curriculum for student movements resisting industry influence. I argue that while conflict of interest is in many ways a valuable way to begin the discussion about industry influence in medicine, it does not sufficiently address the wider social and political contexts that contribute to industry's presence in medical education.

This wider social and political context, as discussed in previous chapters, is in part characterised by a neoliberal framework, which emphasises state-supported markets as the best and most efficient allocators of resources, promotes the notion that societies are composed of producers and consumers motivated by material or economic considerations (Coburn 2000: 138) and helps to facilitate close relationships between medical research and industry interests. While COI is not a product of neoliberalism, that political framework creates conditions ripe for conflict because the logic of the market, the drive for profit, is increasingly embedded in the organisation of medicine and health care, in the partnership between universities and industry, and in the funding of research.

In what follows I first explore the way that the contemporary discussion over COI policies operates within the context of neoliberalism. Second, I review the work of some high profile critics of the pharmaceutical industry (Angell 2004, Kassirer 2005, Avorn 2005, Brody 2007) to understand how they have framed the problem of industry influence and what they see as the solution. This critical literature uses the framework of professionalism to suggest that there are measures that can mitigate the conflict. The participants in my study referenced these works as inspiration for their activism on campus and used regulations by professional associations to shape their campaigns. Third, I evaluate policies and regulatory documents that decry the conflict, but note that partnership with industry does not have to represent a conflict of interest. These documents ultimately support a neo-liberal framework, within which physicians, researchers and educators would work in partnership with industry. I will conclude with some reflections on the idea that the pharmaceutical industry's presence in education is inevitable – one of the primary themes emerging from my interviews with participants.

Conflict of Interest and Neoliberalism

In his exploration of the contemporary relationship between physicians and the pharmaceutical industry in the United States, physician and former editor in chief of the *New England Journal of Medicine*, Jerome Kassirer (2005) writes that incentives offered by the pharmaceutical industry to physicians "yield conflicts of interest that put the physicians' personal welfare against the welfare of their patients. They can exaggerate physicians' financial expectations, impair their judgment, create deception, inflate medical costs, erode professionalism, and harm patients" (xiv). This description of

conflict of interest is common to such texts. It contains assumptions about the physician, the industry, and the results of that relationship between the two.

Conflict of Interest (COI) is clearly not an issue that is limited to medicine – it has been debated through the history of many professions – a vast literature has been devoted to COI particularly with regards to the law. Law Professor Marc A. Rodwin has written two books addressing how COI is particularly relevant to medicine, concluding at the end of his influential 1993 publication *Medicine, Money, and Morals: Physicians' Conflicts of Interest*:

> Unlike other professionals who are subject to extensive conflict-of-interest regulation – such as government employees, lawyers, and certain financial professionals working in business – physicians have addressed these issues largely on their own and have been subject to minimal regulation by state and federal laws or even by professional codes (51).

Rodwin suggest that this approach, characterised by the AMAs reliance on professional norms, individual discretion and subjective standards, has not been particularly effective (1993: 51). The AMA didn't address financial conflicts of interest explicitly in their ethical codes until the 1980s.

For Rodwin, physicians are in a Conflict of Interest when "their interests or commitments compromise their independent judgment or their loyalty to patients" (1993: 9). He argues that physicians have wrestled with a classic tension of their profession since the turn of the century: between a commitment to healing others and their own economic self-interest (Rowdin 1993: 1). Fee for service payment is the most obvious representation of that conflict, where if a physician has a financial incentive for dispensing medical services whether or not they are needed (Rodwin 1993). The focus of my analysis in this chapter is not the general issue of COI in the medical profession,

but the way that the debate about the influence of the pharmaceutical industry on medicine has been consistently framed as a COI. My focus is on the use of this concept as a response to the era of "commercialised" medicine. Kassirer, who was influenced by Rodwin's 1993 publication, describes a sort of awakening about this era in his forward to Rodwin's 2011 text on COI and medicine. He suggests that 'professionalism' has been eroded by financial ties between physicians and the pharmaceutical, medical device, and biotechnology industries. He argues that various exposés about the FDA, physician ties to industry and journal editors with financial stakes in industry led to a growing public awareness about the issue of conflict of interest (Rodwin 2011: iv). Thus what he and others suggest is that there is a new era of awareness about COI, particularly brought on by pharmaceutical industry influence in medicine.

I argue that the current form of commercialised medicine has been facilitated by neoliberal policies and ideologies. A key feature of this commercialisation is the growth of the pharmaceutical industry, which since the 1980s has gone from a rather staid industry to a healthcare marketplace (Hafferty and Castellani 2011). In an article on what knowledge 'counts' when identifying and categorizing new pharmaceuticals as carcinogenic risks, Abraham and Ballinger (2012) note that neoliberalism has "redefined the regulatory state to have much greater convergence of interest and goals with the drug industry than previously, particularly regarding acceleration and cost reduction of drug development and regulatory review" (445). Before neoliberalism, Abraham and Ballinger (2011) argue, governments still worked with industry in a capitalist system, but there was an expectation that the basic goal of pharmaceutical regulation was to protect public health over and above the commercial interests of firms. The "neoliberal shift"

they describe has been taking place since the 1980s, and involves "changing that expectation into enrolment of the state in the service of industry's ever-expanding appetite for increased market access and profits" (Abraham and Ballinger: 447 – referencing Lave, Mirowski and Randalls).

While I am suspicious of this idea that pharmaceutical regulation was primarily interested in public health over the interests of firms prior to neoliberalism, I agree that there has been a shift in expectations – that now regulations seem to be framed as mechanisms to help facilitate industry's role in medicine. This is reflected in the relationships between industry and the State and also between industry and medical education. Canada does have a universal health care system for doctor and hospital care, but the pressures of neoliberalism are relevant both within and outside of hospitals and doctor's offices.

In both the U.S. and Canada, the drug industry has a powerful role in lobbying state agencies that regulate pharmaceutical drugs. In the U.S., industry has sought to influence the FDAs approval of drugs through the Pharmaceutical Research and Manufacturers of America (PhRMA), which represents brand-name drug companies and is a well-organised lobbying organisation in Washington (Wiktorowicz 2003). In Canada, a relationship of dependence has formed between the Health Protection Branch and the pharmaceutical industry because the HPB relies on user fees from the industry. The HPB was renamed the Therapeutics Products Programme in 1997, then was divided into two Directorates in 2001. The TPD has delegated increasing authority to R&D, the lobby group for Canadian pharmaceutical companies which has pushed for faster drug reviews in order to remain globally competitive (Wiktorowicz 2003).

Neoliberal policies have also helped to form closer ties between industry and medicine. As Croissant and Smith-Doerr (2008) argue, there has always been commerce between the ivory tower and for-profit lab but the two realms have seen unprecedented overlap since the 1980 U.S. Bayh-Dole act. They write that the passage of this act, formally titled the *Patents and Trademark Law Amendments Act*, was a pivotal phase. It allowed universities to retain property rights to inventions made with federal funding so that researchers could have financial incentives and rewards for the development of new technologies and products (Croissant and Smith-Doerr 2008:693). Bayh-Dole was extended to corporate research partnerships so they could retain ownership outright, and the pace of university-industry co-sponsored research receiving federal funding increased considerably (Mirowski 2011). Mirowski (2011) importantly notes that Bayh Dole was not the sole or even primary reason why science was increasingly commercialized, but it was a component in a range of simultaneous 'reforms' that brought together corporations, government and universities, intended to instigate a "marketplace of ideas" (149). Similar reforms have been taking place in Canada. When the Canadian government signed on to the World Trade Organisation's Multilateral Agreement on Trade Related Aspects of Intellectual Property, it agreed to legislation promoting the private rights of corporations and allowed transnational pharmaceutical corporations to set drug prices.

Neoliberal reforms have contributed to a new era of commercialised medicine, where medical research is a highly profitable industry, and where COI takes on new meaning. The conflict that physicians face, between professional obligation and personal gain, takes specific forms as the pharmaceutical industry becomes more

present in medicine. Personal gains take the form of gifts, meals, vendor access, samples, positions on pharmacy and therapeutic committees, funding for continuing medical education, consulting positions, honoraria, scholarships, fellowships, travel reimbursement, 'ghostwriting' and speakers bureaus (Chimonas et al. 2011). Many of those who point to the problems with the pharmaceutical industry's influence in medicine limit their analysis to these sites of conflict, reducing the complex interrelationships between medicine and business to an interpersonal relationship between a physician and various forces seeking to profit from medicine. This characterisation of the 'conflict' suggests that there are simply two competing 'interests.' It negates the power relations between physicians (not to mention patients, and the general public) and the representatives of industry, sometimes in collusion with the State, who support and promote the increasingly profit-oriented character of the contemporary health industry. It also suggests that the problem can be easily parsed out and solved with policy – that it is not a feature of a consistent and quite pervasive drive for profit within medicine. In relation to the pharmaceutical industry it is particularly important that social theorists engage in a critique of the framing of this problem as COI. Framing the issue of industry influence only, or even primarily as COI, runs the risk of reproducing physician-industry relations as merely a professional matter. As Rodwin has argued, this has not worked – the AMAs attempts to regulate itself have resulted in a complete watering down of their COI policies (1993).

The influence of the industry exists beyond the direct relationship to the physician. The industry gives money to research institutions, universities, professional associations, regulatory agencies and patient organisations. It hires lobbyists to the tune

of billions of dollars to influence government decision-making. More than this, the relationship that the industry has to medicine has been intensified by neoliberal reforms. As Slaughter and Rhoades (2004) point out,

> The neoliberal state redefined government, privatizing, commercializing, deregulating, and reregulating state functions to promote the new economy in global markets. While universities were not primary players in creating the neoliberal state, they often endorsed initiatives, directly or indirectly (20).

In this context universities in Canada and the United States that played along with neoliberal initiatives, like university-industry government partnerships, were rewarded. Those who refused or didn't fit with that model paid a price (Slaughter and Rhoades 2004).

Social scientists have only recently started developing an understanding of the pharmaceutical industry in relation to global political, economic and medical processes (Belland and Figert 2012). The term 'pharmaceuticalisation' is used to describe "the process by which social, behavioural or bodily conditions are treated, or deemed to be in need of treatment/intervention, with pharmaceuticals by doctors, patients, or both" (Abrahams, 2010: 290). The fact that the medical literature has focused so intently on the individual physician's conflict of interest is an important point of departure for a sociological critique that seeks to uncover the various facets of 'pharmaceuticalisation.' While the debate over pharma within medicine is quite extensive and detailed, it is limited to that personal interaction – the bigger picture is importantly missing. This approach ignores the structural issues that create 'conflict of interest' and ultimately runs the risk of entrenching those structures by making them more palatable, rather than challenging them.

Industry and medicine are integrally connected in the United States and Canada, in the privatisation of various aspects of health care delivery, in the considerable industry support for medical research, and in the close association between pharmaceutical 'detailers' and physicians. Critics might argue that this is exactly their point; that their project is to erect firewalls[18] between medicine and industry. However, as outlined in the previous chapter, medicine is deeply invested in a business approach to bodies and health. This is the case even in Canada's more public system. No regulation can completely separate business interest from medicine, particularly in this context of neoliberalism.

To substantiate my claims about the critics of industry I now turn to a few popular and influential books that have critiqued the pharmaceutical industry. There has been a number of such books, but I will focus on some recent texts by physicians, to point to the way the issue has been addressed within the profession of medicine.

Industry Versus Medicine: The Critics

Criticisms of the pharmaceutical industry from within the ranks of medicine are not new. A 1964 text by an investigative journalist and Washington Post reporter Morton Mintz called *The Therapeutic Nightmare* was revised in 1967 and renamed *By Prescription Only*. Mintz takes aim at the FDA, suggesting that the efforts of the pharmaceutical industry have outpaced the FDA's capacities, eroding the FDA's zeal to protect the public interest (xiv). Mintz seems hopeful in the preface to the 1967 edition when he describes a change in ranks from a pro-pharma head of the FDA to the appointment of

[18] Critics of industry influence in medicine use the term "firewall" to describe guidelines, policies and procedures to distance industry influence from medical practice. It is worthwhile noting that this term was originally used to describe a literal wall made of fireproof material used to prevent the spread of fire from one room to another, and has subsequently been used in the context of digital technology to describe security measures to prevent unauthorised access to computer systems.

Dr. James Goddard, who told the Pharmaceutical Manufacturers Association that he was alarmed by the behaviours of some industry representatives, which he called the "disease of irresponsibility" (xxxii). More than four decades later, the FDA was headed up by Dr. Mark McClellan, who championed drug company causes throughout his career (Angell 2005: 212). The current commissioner, Dr. Margaret Hamburg, was appointed by President Obama and appears less invested in promoting industry interests, but the structural features of the FDA are nonetheless still heavily influenced by industry. As *Time Magazine* reported upon her appointment in 2009, "importantly, Hamburg is believed to be an acceptable choice to both the pharmaceutical industry and consumer advocates, a narrow tightrope any nominee must walk to win Senate confirmation."[19] It seems as though what appeared to be an upturn in Mintz's 1964 estimation was a mere blip on the road to the pharma-friendly haven of the 1980s onwards. There have been waves of disapproval from within medicine about the 'commercialisation' of medicine – the latest seems to have begun in the 1990s, culminating in a collection of popular exposés about the industry and its ills in the 2000s.

I compare Marcia Angell's (2004) exposé *The Truth About the Drug Industry*, Kassirer's (2005) detailed documentation of the troubles with industry *On the Take: How Medicine's Complicity with Big Business Can Endanger Your Health*, Jerry Avorn's (2005) sobering look at the effectiveness of pharmaceutical drugs in *Powerful Medicines: The Benefits, Risks and Costs of Prescription Drugs*, and Howard Brody's (2007) *Hooked: Ethics, the Medical Profession and the Pharmaceutical Industry*. These

[19] Obama's FDA Pick: Margaret Hamburg. By Randy James Thursday, Mar. 12, 2009 (http://www.time.com/time/nation/article/0,8599,1884627,00.html)

works serve to illustrate a broader literature on professionalism and conflict of interest. My comparison focuses specifically on the industry's influence in medical education, noting the discourse on conflict of interest, biomedical approaches to health care, and solutions to industry influence in medicine. These texts have had a considerable impact on the profession, regulators and the public's perceptions of the pharmaceutical industry. The authors are from United States, but the reach extends beyond the U.S., and some of them were certainly mentioned by the participant in my study from Canada. The most important aspect of these texts for the purpose of my study is their influence across the U.S. and Canada in framing a discourse of professionalism. But their situatedness in the U.S. is important for my investigation. I was interested in the types of literature informing the most organised student opposition to the pharmaceutical industry in the U.S. and Canada, the Pharmfree campaign, because it was influential in Canada. Thus the fact that the perspective of the popular critics had an influence on the Pharmfree campaign could act as a model for students in Canada. The only students actively involved with drafting a policy on the pharmaceutical industry in the CFMS specifically referenced AMSA's campaign. While the tenor of these popular texts broadly addresses the medical profession, there are elements that are distinctly American. The most salient example of this is the effort to sort out business interests and medical professionalism, which perhaps stems from the private model of U.S. health care delivery.

There are important scholars within the field of medicine in Canada who have been critical of the pharmaceutical industry. Authors such as Joel Lexchin and Barbara Mintzes, who actually collaborate quite closely with Students for Medicare, are less

inclined to frame their criticism in terms of professionalism. But their work is not as widely referenced as the texts analysed here, and thus do not contribute as much to a dominant professional discourse taken up by medical students. While this investigation does not seek to draw a direct connection from literature about professionalism to the participant's experiences, some participants talked about texts that had influenced them and helped them to understand the context of pharmaceutical industry influence in medicine. Specifically, they mentioned Angell's *The Truth About the Drug Industry* and Kassirer's (2005) *On the Take.* I came across the other works mentioned here by searching websites that were connected to student movements addressing industry influence in medicine, like PharmedOut.org and HealthySkepticism.org.

While fastidious in documenting the details of various pharmaceutical industry scandals and genuine in their effort to promote an ethic of medical professionalism, these popular texts contain some important assumptions. These are: first, medicine in its proper form is altruistic and scientific (meaning objective and value-free); second, the interests of medicine are distinct from the interests of industry; third, the involvement of the pharmaceutical industry in medicine is a necessary evil to be accommodated; and fourth, the problems with the collaboration between industry and medicine can be reduced primarily to physicians' individual responsibility to keep any COI in check. Not all of the texts explored contain all of these assumptions. I outline each point below and draw from the relevant texts themselves for examples. Again, the relevance of these texts is that they are influential for movements opposing the influence of the pharmaceutical industry in medical education. They constitute an informal curriculum, where medical students who are suspicious or curious about the industry can read

about how it operates in relation to medicine – an education that is not readily available in medical school.

The texts assume that medicine in its proper form is altruistic and scientific (meaning objective and value-free). Several of the authors hold the medical profession as a distinctly ethical profession that is either corrupted or at risk of being corrupted by industry. Kassirer (2005) says "My beef is with those who exploit their professional status for personal gain in schemes that are counterproductive to patient's best interests and the professional's venerable goal of curing and caring for the sick" (xvii). This "venerable goal" is the common denominator for the ethic of the profession. What is more, this goal is characterised by an altruism that always situates the patient as number one. Brody (2007) says "Most believe that becoming and practicing as a physician is a somewhat different matter, morally, from simply setting oneself up in business" (23). He says that physicians are supposed to put aside their own personal interests and devote themselves to promoting the interests of their patient (Brody 2007: 23). Brody's comments also reflect the theme that medicine and business are different; he suggests they are respectfully pure and impure.

This profession is not a profession like any other. According to these authors, what distinguishes medicine is that it is fundamentally based on science. "Medications are one of the finest achievements in all of science, and when used appropriately the good they do far outweighs their harm" (Avorn 2005: 18). On the same page, Avorn (2005) says "many doctors make sound prescribing decisions much of the time, and most drugs are both effective and reasonably safe" (18). Angell (2004) writes "Medical education worthy of the name requires an impartial analysis of all the available

evidence, led by experts who have no vested interest in the drugs they are discussing. It is the job of medical schools and their faculty, and of professional societies, to educate doctors in that way" (Angell 2004: 154). In sum, these authors write that medicine is about curing and caring for the sick, this mission is altruistic, where the patient always comes first, that mission is different from 'business,' in part because it is based on science. The last quote by Avorn suggests there is also a faith that most of the time all of these assumptions 'work.' This is also a theme in the texts: that there is nothing wrong with the foundations of medicine – it is the corrupting influence of industry that poses a threat. The quote from Angell indicates the degree to which those within medicine say they believe in the ethical foundation of their profession – one distinct from industry influence and embodying impartiality.

The second related set of assumptions suggests that the interests of medicine are distinct from the interests of industry. Kassirer (2005) finishes his book with the sentence: "The profession is under siege by big business, and I do not perceive a vigorous effort to rescue it" (213). This embattlement between the profession and big business is framed as two separate entities that must come into contact and contend with their very distinct ethics. In some ways the books recognise that existing political structures (mainly in the U.S.) perpetuate the problem. They refer to FDA rights and wrongs, the costs of medication and the impact it has on the economy, the fact that the industry is big business. But even if they are quite critical of the for-profit nature of the pharmaceutical industry, they don't see this as part of a broader economic and political framework. If they mention capitalism, it is to note that capitalism is here to stay, and

these happen to be the rules of capitalism. The most radical solution proposed is to reform the industry.

Third, the involvement of the pharmaceutical industry in medicine is a necessary evil to be accommodated. Brody's *Hooked* (2007) presents the argument that doctors are "hooked" on the pharmaceutical industry, its gifts and rewards, but the title also means that medicine and the industry are inter-dependent:

> Once upon a time, physicians could wander out into the woods, gather a basketful of herbs and roots, and proceed to treat patients according to the best scientific standards of the day. Today, medicine and the pharmaceutical industry must find ways to thrive together if patients are to be well served (5).

Avorn (2005) writes,

> every drug is a triangle with three faces, representing the healing it can bring, the hazards it can inflict, and the economic impact of each. All of us – doctors, patients, regulators, taxpayers, insurers, policy makers – must learn to balance these three dimensions better if we are to get the maximum benefit from this most common and powerful of all health care interventions (17).

In these two quotations the authors suggest that medicine and business, though distinct, are integrated in the current context. There is a bit of an irony to these statements, because while they argue that medicine has its own distinct (moral and scientific) ethos, which separates it from industry, the partnership between the two is considered essential for medicine to flourish. This perspective could be a reflection of the fact that these works come from the U.S. where private funding of medical services has contributed to a notion that the two must be interrelated.

Fourth and finally, there is an assumption that the problems with the collaboration between industry and medicine can be reduced to conflict of interest; there is no broader problem. This point is not obvious in the texts by Angell and Avorn, and perhaps these authors don't actively carry this assumption. They do, however,

perpetuate it passively by avoiding any discussion of broader structures of power. Kassirer (2005) quite explicitly says that he is not criticizing the pharma and biotech industries: "I am not opposed to big business, to capitalism, or to making money" (xvi). He actually sings the praises of these industries for improving the quality of life for millions and contributing to economic growth. It is when they start to influence physicians that he has a problem: "Here is the dilemma: where does the line exist between advancing the cause of science and the betterment of patient care on the one hand and the pecuniary interests of the physicians collaborating with industry to produce these advances on the other?" (xvii). And later he writes: "whether intentionally or not, too many physicians have become marketing whores, mere tools of industry's promotional efforts..." (xvii). In other words, "they foster industry goals over patient goals" (xvii).

Brody (2007) also interestingly praises the pharmaceutical industry and makes clear that he is by no means an anti-capitalist. He says the pharmaceutical industry plays a morally good role and deserves credit for its praiseworthy behavior, for example, by employing large numbers of people and earning substantial profits for its shareholders, occasionally producing life-saving drugs, doing 'charitable' work like making drugs available in Africa for free, etc. "I wish to make clear that I am adopting an ethical stance of general agreement with the values of capitalist society...As long as one commits no crime or fraud and violates no important principles of business ethics, it is a good thing to make money by producing something that people wish to buy" (Brody 2007: 27).

These authors put forth a wide variety of solutions that can be summed up as reforms to the pharmaceutical industry. They list suggestions for immediate implementation and offer suggestions for further analysis. An important commonality between these works when they address solutions is an appeal to professionalism. Put starkly by Avorn (2005):

> Failing to keep up with the latest evidence from the medical literature, being unaware of the economics of what we prescribe, forgetting that every prescription is inherently an interpersonal transaction – these lapses are undercutting our moral authority as gatekeepers to the sacred world of science-based healing. As we're about to see if we don't act soon they may prove to be our professional undoing (400).

This appeal to professionalism is not only about adhering to the best science, but it is also about ensuring professional dominance. The appeal to professionalism is linked to framing the issue as COI. Professionalism is a moral correction to self-interest – a higher power.

There is more nuance to the texts than a simple reduction of the complexity of the issue to the conflict between physicians and industry. For instance, Brody (2007) acknowledges that COI is complex and almost impossible to define because it is used in so many different contexts with both descriptive and performative intent (30). He notes "The physician has a *professional duty* to care for the patient at a level of reasonable competence and fiduciary commitment. By contrast, the physician has no *duty* to make more money" (Brody 2007: 34, italics in original). The emphasis on duties is an attempt to criticise the emphasis on interests, as though various interests carry equal moral weight. Brody (2007) acknowledges that there is "a network of power relationships among all players in our system" which takes the form of everything from individual physicians receiving gifts, to industry support for professional organisations to industry

support of research and industry's role in lobbying government for favourable laws and regulations. His acknowledgment of all of these forces alongside his defense of capitalism is difficult to reconcile. Like the other works in this selection, he acknowledges some structural elements of industry influence without ever putting the social order in question.

Those within medicine who have lodged a critique of the industry and attempt to find solutions to the problem of conflict of interest are surely doing important critical work. They are resisting the status quo, and in some ways very courageously drawing attention to some important problems within their own profession. Angell and Kassirer are using their considerable credibility as former editors of one of the most reputable medical journals in the world to take on the frankly mammoth ethical dilemma industry influence poses to physicians. My efforts to critique the framing of the problem as conflict of interest are not to undermine the significance of such works, but to note the possible dangers endemic to their assumptions about medicine and industry. It is ahistorical to pose the interests of medicine and industry as inherently distinct. In failing to grapple with the close association between the two entities these authors run the risk of perpetuating the allegiance. Sociologists have paid attention to how these assumptions have been developed by the profession.

The Politics of Professionalism

As mentioned, there has been an increasingly prolific commentary expressing concern over the pharmaceutical industry's presence in medicine in editorials and letters in medical journals since the mid 1980s, more fully in the 1990s, when a substantial body of research demonstrated the effects of industry gifts on physician behaviours. Hafferty

and Castellani (2011) say that this torrent of articles denounced the arrival of 'corporate medicine' and identified commercialism as the enemy – the antithesis to professionalism (208). They describe the recent wave of efforts to shore up professionalism in the face of commercialisation of medicine. This concern is substantiated by the high-profile books discussed above, amongst others, which criticise the industry's objectives and practices (Abraham 1995, Avorn 2005, Angell 2005, Kassirer 2004, Greider 2003, Law 2006, Goozner 2005, Moynihan and Cassels 2006). Hafferty and Castellani (2011) refer to Robert Straus's 1950s distinction between *sociology of* and *sociology in* medicine, where sociologists of medicine study medicine as anthropologically strange, and sociologists in medicine (who often would not identify primarily as sociologists) work *in the service of* medicine (201). It is possibly useful to resurrect this duality to recognise that much of the work on the subject of medical education and the pharmaceutical industry falls clearly within the latter category. Hafferty and Castellani (2011) argue that both worlds have evolved, but have done so as separate domains, "two ships passing in the night" (202). They focus on medicine's emerging discourse on professionalism, suggest there is an opportunity for sociologists to intervene, to understand how this call to physicians to rediscover their professional roots is influenced by structural factors (Hafferty and Castellani 2011: 202).

The literature on professionalism within medical sociology dates back to Talcott Parsons, crystallizing with Eliot Friedson's *Professional Dominance* (1970) and *Profession of Medicine* (1970), and unfolding as a body of theory in sociology with authors like Marie Haug, Donald Light and John McKinlay. This literature attempts to understand medicine as a profession, wrestling with concepts such as commercialism,

professional dominance, deprofessionalisation, proletarianisation, corporatisation and countervailing powers (Hafferty and Castellani 2011: 202). When sociological interests in professionalism started to dwindle in the 1990s, organised medicine's concerted campaign for professionalism was in full swing, with accompanying movements for evidence-based medicine and patient safety. The professionalism project from within medicine has argued that commercialism is antithetical to professionalism, and thus there is a need to 'rediscover' and 'recommit' to an ethic of professionalism (Hafferty and Castellani 2011: 208). Courses on professionalism were deployed at virtually every medical school in the country by the mid 1990s (ibid). Given Friedson's known warnings about parochialism and insularity back in the 1970s, this move demonstrates that the two ships certainly are not on the same course. As Hafferty and Castellani put it when describing this wave of anti-commercial writing and teaching within the bounds of professionalism, "where sociology had emphasised social structures, jurisdictional issues of influence, and themes such as power and privilege, medicine's own professionalism was more about the motives and behaviours of individual practitioners and students" (2011: 208).

The piece by Hafferty and Castellani is important for this investigation because it acknowledges an opening for sociologists who can draw on a substantial critical literature about medicine as a profession to offer an important insight into this movement for professionalism. I take up their call for sociological investigation into this matter, but with a particular emphasis on structural relations of power. Anne Witz outlines such an approach in her *Professions and Patriarchy* (1992). This text offers some important additions to theorizing on professions.

Charging that the relationship between gender and professionalisation has been neglected, and that female professional projects have been ignored in the sociology on professions, Witz (1992) explores the gendered dimensions of closure strategies and explores the structural and historical parameters of professionalisation within patriarchy and capitalism (37). My work does not focus on the gendered aspects of professionalism, but rather takes up Witz's approach to understanding professions sociologically. She wants to abandon any generic concept of profession and redefine the sociology of professions as empirical and historical cases, arguing that professionalism is not the apolitical and purely scientific project it is projected as, either in the past or now. It is fully infused with power dynamics. In other words, power is essential to an understanding of professions and professionalisation.

I argue that medicine's professionalism project is not simply a nostalgic effort to shore up professional autonomy. Among other things, it is a product of neoliberalism, where human beings are framed as individual autonomous actors and power-relations are reproduced and then ignored. In a context in which social problems are consistently framed as individual problems, and where collective action is discredited and un-recognised, it is not surprising that those who feel offended by what medicine looks like today would turn to their own professional conduct as a solution. The way in which they critique this system, as noted in the analysis of some of the medical critiques above, does not call social structures into question in any significant way, possibly because this line of thinking has been so discredited. In an effort to appear credible and reasonable, physicians appeal to science, suggest that the industry has gone awry, and offer strategies to bring it in line within the bounds of capitalism. This importantly closes the

door on discussions about what it means to be a professional. The assumption that all physicians must band together against commercialism indicates to all professionals that they are in this together – the inequalities deeply seated within the profession and beyond are washed away.

Regulating the Conflict

The history of regulating COI amongst medical professionals demonstrates that while the critics of industry influence have been vocal about the problems with COI, their input does not make its way into regulation quickly and with its full intent. What is reflected in regulation frames the collaboration between industry and medicine as positive, and thus helps perpetuate that relationship as a normal part of medicine. Furthermore, these regulations are not particularly effective in mitigating or addressing COI in a meaningful way. Concerns about conflict of interest resulting from closer ties between universities and industry have been recognised and addressed in public statements by professional associations since the 1960s (IOM: 39). But there were no official conflict of interest policies – in fact the Association of American Universities declined to propose conflict of interest policies for its members in 1984, instead undertaking a survey. This was possibly spurred by the U.S. congressional hearings in the 1980s posing questions about whether conflicts of interest were reducing openness in universities and biasing the advice given to policy makers (IOM: 35). Also in 1984, the *New England Journal of Medicine* published the first policy on conflict of interest in an editorial (Relman). It asked authors to disclose their relationships with companies that could be affected by their published findings. Since that time, a growing body of literature about industry influence on physician prescribing, media exposés of physician-industry ties and undue

influence on patient care, and high-profile legal cases about drug companies' illegal marketing of drugs to physicians led several prominent organisations to devise and evaluate guidelines for managing clinical conflicts of interest (Chimonas et al. 2011).

The Association of American Medical Colleges (AAMC) published *Guidelines for Dealing with Faculty Conflicts of Commitment and Conflicts of Interest in Research* and the American Medical Association (AMA) adopted a statement on inappropriate gifts to physicians from industry in 1990. In this same year, the American College of Physicians issued a position paper on physicians and the pharmaceutical industry. In the following 20 years, particularly after 2000, countless more organisations followed suit issuing reports on conflict of interest in aspects of medical research education or practice: The International Committee of Medical Journal Editors, the National Science Foundation, the Food and Drug Administration, the Pharmaceutical Research and Manufacturers of America, The Advanced Medical Technology Association, in addition to countless other professional associations, all called for more accountability and openness and more effective implementation (IOML 37-38).

Most of the policies on conflict of interest were directed at physicians. Medical education before the clinical years was not addressed, but there were commentaries about it. A *Lancet* editorial in 2000 ominously posited: "It starts slowly and insidiously, like an addiction, and can end up influencing the very nature of medical decision-making and practice. It first appears harmless enough: a textbook here, a penlight there, and progresses to stethoscopes and black bags, until eventually come nights 'on the town' at academic conventions and all-expenses paid 'educational symposia' in lovely locales" (781). This editorial spoke more to continuing medical education for physicians but

notes that the 'courting' takes place with textbooks and penlights in the early years – it is a process that is present from the very beginning of medical education.

It was not until 2006 that the AAMC charged a special *Task Force on Industry Funding of Medical Education* to develop policy to manage industry gifting practices and financial support of their programs of medical education for students, trainees, faculty and community physicians. The report of this Task Force, *Industry Funding of Medical Education,* was published in 2008, outlining a number of recommendations to academic medical centers regarding gifts, pharmaceutical samples, site access by pharmaceutical representatives, etc. This influential document has been taken up at institutions across the U.S.

Canadian professional organisations and governmental representatives have not addressed COI with the vigour of their U.S. counterparts. The Canadian Medical Association published its *Guidelines for Physicians in Interaction with Industry* in 2007, but decided that they could not adopt a formal specific set of regulations for physicians. The Association's journal published an editorial lamenting Canada's lack of regulations on this topic. They acknowledge that in medical schools across North America students are taught by faculty who receive funds from the pharmaceutical industry, and they claim that the situation is, to a degree, unavoidable.

Given this unavoidability, the CMA decries the lack of policies at Canadian medical schools addressing disclosure requirements for undergraduate teachers. They do not blame the industry – they are just promoting their business. "The fault lies with medical schools that encourage and depend on physicians to teach their curriculum but neglect to protect the quality of undergraduate medical education by mandating

disclosure of competing interests" (Hebert et al. 2010). They call on Faculties of medicine and the Association of Faculties of Medicine of Canada to immediately adopt the guidance about disclosure of competing interests issued in 2008 by the Association of American Medical Colleges and recommend that medical school curricula incorporate formal teaching on the effects of competing interests on evaluation of medical information. They end with a rallying cry for medical students to receive a bias-free education.

The *CMAJ* editorial calls upon the Faculties of Medicine and Association of Faculties of Medicine of Canada to adopt the AAMC guidelines. This is met with a letter from Nick Busing, the President and CEO Association of Faculties of Medicine of Canada called "Canadian faculties of medicine not in denial "(*CMAJ* 2011). He says that the AFMC (17 deans of medicine and 4 public members) voted to endorse the principles contained in the AAMC report on industry funding of medical education. "All of our faculties have reviewed their codes and guidelines relating to conflict of interest and many have made, or are making, substantial advances" (463). The AFMC's November 2010 newsletter is devoted to conflict of interest. In it, Busing says that COI is important now, in part because of developments in the U.S. where lawmakers have taken members of the medical establishment to task for non-disclosure, COI, etc. Tom Freeman, chairman of University of Western Ontario Schulich School of Medicine and Dentistry is quoted in the article saying that COI is becoming a top priority in Canada. "For both medical schools and industry, maintaining public trust is key." The article also quotes the President of Canada's Research-Based Pharmaceutical Companies (Rx&D), Russell Williams, who says definitions of conflict are still "a matter of debate." Williams

continues: "There will be fewer conflicts when everyone knows the rules....All parties involved should have a seat at the table early in the process of creating reasonable and practical conflict-of-interest guidelines."

In both the U.S. and Canada, The AAMC Task Force 2008 document *Industry Funding of Medical Education* and the Institute of Medicine's (IOM) 2009 *Conflict of Interest in Medical Research, Education and Practice*, are heralded as key position papers addressing industry influence in medical education. Several critics of industry influence describe the significance of these documents in the same way. Kassirer says these two documents set new standards for academic institutions and physicians, and that "one by one, universities and medical schools developed or revised their conflict of interest policies" (Rodwin 2011: x). He acknowledges that a lot of those policies were not particularly restrictive and failed to eliminate the most egregious practices like paid participation in speaker's bureaus. The introduction to AMSA's Pharmfree scorecard, first released in 2007, notes:

> Medical schools and academic medical centers have played a powerful leadership role in setting new standards for the profession, supported by strong guidelines set by the Association of American Medical Colleges (AAMC) in the summer of 2008 and the Institute of Medicine in spring 2009 (AMSA 2007).

AMSA's implicit endorsement of these policies overlooks the fact that they use the notion of conflict of interest to secure the relationship between medicine and industry. These documents are an important analytical focus for my investigation because they are used by social movements, including the AMSA Pharmfree movement, as models by which to shape the objectives of an organised challenge to industry influence in medical education.

My first contention is that both documents fully purport a neoliberal ideology by advocating a close relationship between medicine and industry and suggesting that this partnership is essential for scientific progress. The AAMC's document urges all academic medical centers to accelerate their adoption of policies that better manage, and when necessary, prohibit, academic-industry interactions that can inherently create conflicts of interest and undermine standards of professionalism (4). It begins with this statement:

> An effective and principled partnership between academic medical centers and various health industries is critical in order to realise fully the benefits of biomedical research and ensure continued advances in the prevention, diagnosis, and treatment of disease. Appropriate management of this partnership by both academic medical centers and industry is crucial to ensure that it remains principled, thereby sustaining public trust in the proposition that both partners are fundamentally dedicated to the welfare of patients and the improvement of public health (AAMC 2008).

This statement contains important value-laden assumptions about medicine, health industries, and their relationship to one another. First, it supports the "partnership" between medical centres and health industries. "Partnership" is a neo-liberal watchword, suggesting that the relationship between the public and the private sector is equal and mutually beneficial. Second, it suggests that this partnership is necessary for modern medicine to achieve its goals of prevention, diagnosis and treatment of disease – that the private sector is essential for scientific progress. Third, it argues that any problems resulting from that partnership, which the document frames as conflict of interest can be managed, so that it "remains principled." This management is directly related to manufacturing consent for the public – to ensuring "public trust." By suggesting that the objectives of medicine and the objectives of industry are both 'interests' depoliticises the two entities and mitigates the power relationships endemic to

the complex dynamic of the 'partnership.' The very word 'partner' suggests a complicity that neutralises the conflict. Thus this document does not just accept the context of commercialised medicine under neoliberalism, it operates to shape that context and legitimate it.

The report came out of a Task Force involving 31 stakeholders, including two representatives from the pharmaceutical industry – Jeff Kindler, CEO of Pfizer Incorporated and Sidney Taurel, Chairman and CEO of Eli Lilly and Company. It was chaired by the former Chairman and CEO of Merck, Roy Vagelos. In appendix B, Kindler, and Taurel say they are totally in support of the report except for one recommendation:

> We cannot agree with the report's suggestion that AMCs actively discourage academic physicians from participating in the defined speakers programs. While individual academic centers may decide to adopt such a policy—and, in that case, we will, of course, abide by those policies for those centers—we continue to believe that these types of programs, which are subject to clear regulations regarding their content, can be worthwhile educational activities. We therefore must continue to express our disagreement with the provisions of the report that actively discourage academic physicians from participating in industry-sponsored, FDA-regulated speaker programs.

This report strongly discourages faculty participation in industry-sponsored speakers' bureaus, and recommends that if medical centres allow participation, they should develop standards that define appropriate and acceptable involvement, require full transparency and disclosure by personnel to the centres, and require that payments to academic personnel be only at fair market value. These do not appear to be radical requirements, and are thus an interesting sticking point for the industry representatives on the Task Force.

Industry representatives were completely integral to the creation of the AAMC's report, but this seems to have escaped those critics who look to this document as a critique of industry influence. The IOM is also clearly entrenched in a neoliberal ideology. The opening sentences of *Conflict of Interest in Medical Research, Education and Practice* are:

> Patients and the public benefit from constructive collaboration between academic medicine and pharmaceutical, medical device, and biotechnology companies. At the same time, medical leaders, public officials, public interest groups, and others have raised concerns about the risks associated with the extensive financial ties that link industry with the individuals and institutions that carry out medical research, medical education, patient care, and practice guideline development (IOM 2009: 23).

According to this document the primary problem with this relationship is that conflicts of interest can threaten the integrity of scientific investigations, the objectivity of medical education, the quality of patient care, and the public's trust in medicine (IOM 2009: 23). The themes of the report essentially suggest that conflict of interest policies can solve these problems. These policies can protect the integrity of professional judgment and preserve public trust.

My second contention about these documents is that they are entrenched in the belief that they are promoting objective, unbiased and evidence-based medicine. The AAMC document notes that medical schools and teaching hospitals have become increasingly dependent on industry support for core educational missions. Reliance raises concerns because it includes gifts and can influence "the objectivity and integrity of academic teaching, learning, and practice, thereby calling into question the commitment of academia and industry together to promote the public's interest by fostering the most cost-effective, evidence-based medical care possible" (AAMC

2008:4). Framing the goals of medicine to be 'cost-effective' and 'evidence-based' are already accommodations to industry. These two tenets can be and often are used to rationalise cost-savings measures, standardisation, regulation and privatisation, all prongs of neoliberalism. The IOM's document says "This study grew out of discussions within the IOM about the threats to objectivity and public trust in biomedical research and medicine created by conflicts of interest related to certain types of financial relationships between industry and researchers based in universities and federal agencies" (2009: 30)

My third and final contention about these documents is that their promotion of 'professionalism' as a correction to conflict of interest in medical education is an effort to individualise the problem of industry influence, limiting it to the site of interaction between the physician and the industry representative. The AAMC's chapter on professionalism notes: "Professionalism lies at the heart of medicine, and inculcating the values associated with it in future generations of physicians is a primary responsibility of academic medicine" (2008:13). The IOM document's introduction says:

> In medical education, it is particularly troublesome when a faculty member is a promotional speaker for a pharmaceutical, medical device, or biotechnology company or agrees to be listed as an author for a ghostwritten publication. This is because faculty members are expected to present unbiased information and objective assessments of the scientific literature and to help medical students, residents, and fellows develop life-long habits of exercising independent judgment and critically evaluating scientific evidence. They are also expected to serve as role models of professionalism (24)

The report encourages policies that address interactions between medical personnel and industry. 'Education for professionalism' means raising awareness among students, trainees and faculties of challenges to professionalism presented by interactions with industry and providing opportunities to build critical evaluation skills that "reinforce high

individual standards, norms, and behaviors." Again, this very individualised focus is on managing the one-on-one interaction amongst physicians and industry – it pays no attention to the broader structural issues involved in this topic. It is believed that prohibiting gifts to individuals, centrally managing samples, restricting site access by pharmaceutical representatives, auditing CME courses etc. will "optimise the benefits inherent in the relationship between academic medicine and industry and minimise the risks." Thus the acceptance of industry as a partner in academic medicine is quite stark.

The AAMC's document attempts to use the notion of the 'hidden curriculum' to suggest that educational interventions must not only address the explicit curriculum but also the learning environment, suggesting academic medicine could more effectively "teach students and trainees how to think about receiving things of value from industry" (AAMC 2008: 11). But this very sentence assumes that 'receiving things of value from industry' is an appropriate and inevitable practice in medicine. The very fact that they are receiving things of value from industry is not problematised. They pose a set of restrictions that are supposed to manage industry-physician and industry-student interactions, but do not address the fact that the purpose of the industry's presence in medical education is to influence future physicians in a way that allows them to profit from drugs.

In addition to being rooted in a problematic framework, the regulations addressing COI mentioned above are not taken up very consistently at a local level, in medical schools and research centres. Medical schools are currently subjected to conflict of interest guidelines in the U.S. and Canada. The Liaison Committee for Medical Education (LCME) in the U.S. has guidelines for medical schools and Conflict

of Interest and accredits complete and independent medical education programs in United States or Canada. Initially medical schools are asked to undertake an evaluation of their own institution following the LCME guidelines. The components that address conflict of interest in are in the LCME guidelines under Institutional Setting, number 5:

> The governing board responsible for oversight of an institution that offers a medical education program must have and follow formal policies and procedures to avoid the impact of conflicts of interest of members in the operation of the institution and its associated clinical facilities and any related enterprises" (http://www.lcme.org/connections/connections-2012-2013/IS-5_2012-2013.htm).

And under Faculty, number 8:

> A medical education program should have policies in place that deal with circumstances in which the private interests of a faculty or staff member may be in conflict with his or her official institutional or programmatic responsibilities (http://www.lcme.org/connections/connections-2012-2013/FA-8_2012-2013.htm).

Following the self-evaluation, a survey team evaluates the school and makes recommendations in a report, which is one of the documents available to the 19-member LCME committee. The Committee issues an accreditation decision. Accreditation of Canadian medical education programs is undertaken in cooperation with the Committee on the Accreditation of Canadian Medical Schools (CACMS). Both CACMS and LCME make independent decisions about Canadian schools and then the two decisions are compared – the more severe action is used. If a school does not meet accreditation guidelines, they can be put on warning or probation. It is possible for a school to have their accreditation withdrawn, but this is rare. The ruling that is published is an overall ruling – scores for specific categories are not publically available – so if a school doesn't meet standards for a particular category, for instance, conflict of interest, this information would not be publicly available.

Questions IS5 and FA8 of the LCME evaluation guidelines are vague. They require institutions to have and follow policies on conflict of interest, but do not specify what these policies should contain. Furthermore, they do not report on their findings about the existence of such policies. Part of AMSA's campaign is the Pharmfree Scorecard created in 2007 to not only assess the policies of academic medical centers and medical schools in regard to the interaction between students or faculty and the pharmaceutical industry, but also to make them publically available so that the students, faculty, and public could hold that school to a particular standard. AMSA used the Institute on Medicine as a Profession and American Board of Internal Medicine's 2006 recommendations to assign letter grades to school's policies. In its fifth iteration in 2012 it evaluated the conflict-of-interest policies at 152 allopathic and osteopathic medical colleges in the United States and Puerto Rico. As of March 7, 2012, 149 of 152 medical institutions considered eligible for grading have participated in the Scorecard, a 98 per cent participation rate, improved from 92 per cent in 2009. Of these 152 U.S. medical schools, 28 receive "A"s (18 per cent), 74 "B"s (49 per cent), 15 "C"s (10 per cent), and 13 "D"s (9 per cent). Nine schools (6 per cent) receive a grade of F.

While AMSA's scorecard has been effective in mobilizing media attention and promoting change, it is not currently organised to be a reliable and rigorous data set and thus academics are hesitant to reference the material as completely credible. There have been a few more rigorous studies that garner more credibility in the field. A 2005 survey of 126 student affairs deans of medical schools (with a response rate of 87.3 per cent) to measure the prevalence of school-wide policies on drug company medical student interactions revealed that 99 per cent knew their policy status, but only 10.1 per

cent actually had a school-wide policy about these interactions. The study concludes: "Research should focus on evaluating methods to limit these experiences and affect the development of students' attitudes to ensure that physicians' decisions are based solely on helping each patient achieve the greatest possible benefit" (Sierles et al. 2005).

Chimonas et al. (2011) noted a consensus about requirements for Clinical Conflict of Interest (CCOI) policies among three documents: first, the 2006 Institute on Medicine as a Profession (IMAP) and the American Board of Internal Medicine (ABIM) Foundation's publication in the *Journal of the American Medical Association;* second, the 2008 Association of American Medical Colleges (AAMC) task force on managing conflicts of interest in medical education and third, the Institute of Medicine's (IOM) 2009 proposal. Using the consensus among these policies as a standard, Chimonas et al. measured CCOI policies at existing medical institutions. They asked deans and compliance officers at all 125 MD-granting U.S. medical schools to participate in a study of CCOI Policies at U.S. medical schools and received responses from 77 schools (62 per cent), finding that adoption of CCOI policies was incomplete (Chimonas et al. 2011). "The absence of policy was the most prevalent finding in 7 of 11 CCOI areas. Even the most frequently regulated areas— gifts and consulting— had "no policy" rates of 25% and 23%, respectively" (Chimonas et al. 2011: 297).

In Canada, few medical schools had official policies regulating pharmaceutical industry interactions with students and residents. In 1997, a survey of 16 Canadian residency training programs in family medicine showed that only four of 16 programs had formal policies or guidelines (Mahood et al. 1997). Industry presence and sponsorship in these programs was significant, according to the study, and screening

was limited. The authors conclude: "The data suggest a strong industry presence and high level of industry sponsorship in Canadian family medicine training programs and relatively underdeveloped mechanisms for screening, assessing, and monitoring such involvement" (Mahood et al. 1997: 1950).

In the aforementioned study by Shnier and colleagues, the authors find that most medical faculties (70 per cent) have permissive policies or no policy concerning faculty involvement in company speakers' bureaus, 70 per cent of medical faculties had permissive policies or no policies concerning interactions with sales representatives, and most universities (70 per cent) also failed to cover conflicts of interest or drug promotion in the curriculum. They also note that COI policies were most stringent in the area of disclosure, ghostwriting, gifts, (considered to be the easiest to prohibit) and scholarships, corroborating AMSA's findings in its annual reviews of policies in U.S. medical schools and osteopathic schools. The Shnier study followed Chimonas and colleagues' 2011 investigation of CCOI policies, where they reflect on why it is that so few institutions have a CCOI policy, noting that greater NIH funding was associated with policy stringency (2011: 299). But there is reason to be suspicious of why the administrative leaders of these institutions might be dragging their feet. A 2007 survey of 459 department chairs in 125 accredited U.S. allopathic medical schools and the 15 largest independent teaching hospitals found that 60 per cent of department chairs had some sort of personal relationship with industry, including serving as a consultant (27 per cent), a member of a scientific advisory board (27 per cent), a paid speaker (14 per cent), an officer (7 per cent), a founder (9 per cent), or a member of the board of directors (11 per cent) (Campbell et al. 2007). Sixty-seven per cent of departments as

administrative units had a relationship with industry (ibid). Seventy two per cent chairs perceived that having a relationship with industry had no effect on their professional activities (ibid). A 2010 study of Internal Medicine Program Directors received 236 responses and revealed that most did not find pharmaceutical support desirable, but more than half received industry support (Loertscher 2010).

To summarise, acceptance of industry influence is written into the very policies meant to address COI, and the literature on COI demonstrates that conflicts of interest are quite common in academic medicine. It appears that the policies actually help to facilitate industry influence in their intent, and ironically, in their ineffectiveness.

The Inevitability of Commercialisation

As demonstrated by the discussion above, some of the most critical works on industry influence in medicine and medical education assume that industry's presence is inevitable – and while some argue that there are problems with this influence, ultimately it is essential for medicine to continue to advance technologically and therapeutically. This assumption is reflected in AMSA's campaigns. The AMSA Model Pharmfree Curriculum aims to provide students with the knowledge and analytic skills necessary to "1, Understand the nature of conflicts of interest and how they pertain to the practice of medicine; 2, Recognise how industry can impact clinical care and develop strategies to mitigate the negative influence; and 3, Properly manage industry relations to maximise patient and social benefit" (AMSA Evidence and Recommendations for a Model Pharmfree Curriculum). These objectives speak to the centrality of conflict of interest as a guide for addressing industry influence. They indicate that the organisation has accepted the presence of industry in medicine, and reveal that the purpose of the

campaign is to teach students how to manage that presence. The following chapters complicate these assumptions with input from students who are engaged in Pharmfree, but their materials support COI as a central focus of the campaign.

There are some works on industry influence from within the field of medicine that address the broader structures of the conflict and do not assume this inevitability. David Healy (2013) argues that the global marketing of pharmaceuticals to the tune of over $900 billion amounts to the creation of a "new healthcare universe – a universe where the focus has shifted from medicine, in which progress occurred slowly but patients benefited, to a healthcare products market in which science and progress have become marketing terms and where benefits accrue to companies even while patients suffer harm" (11). He argues that capitalism and free markets do offer hi-tech healthcare and breakthrough drugs, and that this seems to be more a public priority than caring and the social determinants of health (19). But pharmaceutical companies of the 20th century have actually undermined free markets by completely monopolizing marketing over innovation as the key to profit. Healy argues that there was something of a 'firewall' between academia and industry before the 1980s, but at that time began the industrialisation of processes in research, development, delivery, defense and marketing of pharmaceuticals. The process that companies have industrialised is doing trials that give positive results and can be published with legitimacy in reputable journals with names of leading academic authors (115). Thus Healy understands that the interests of medicine and industry have become intertwined (he calls this the "medico-pharmaceutical complex" (259)), and he does not believe that this must be the case. He also urges us to think beyond conflict of interest to the political and structural

components of the 'industrialisation' of scientific research. He does, however, perpetuate the assumption that medicine in its proper form is scientific. He notes "Science is not value free. It values data. Science is not about publishing the appearances of a scientific experiment, it is about replicable data. But for some reason the normal rules of science appear to be suspended in proximity to a pharmaceutical company" (116). This belief in science as objective has been thoroughly critiqued by social scientists, particularly within the field of Science and Technology Studies.

Social theorists have pointed out that scientific medicine is not only value-laden, it does not just value 'data', despite its claim to objectivity. It is clear that the critiques outlined above uphold the notion of objectivity, and in fact use this as one of medicine's distinctive characteristics separating it from a profit-motive. To summarise briefly, the assumptions of allopathic medicine, as outlined in the previous chapter, are that the determinants of illness are primarily biological; that the body is assumed to work like a machine; that health care is about curing illness or disability with drugs and surgery; that medicine is scientific, and each disease has a single well-defined cause which can be corrected; and that the doctor is the objective authority or the expert (Armstrong and Armstrong 2010: 23). I posit that the danger of these assumptions in this context is that if they are not seen as assumptions, but as natural, inevitable and politically neutral 'facts,' physicians will not be able to truly grapple with the extent to which industry has made inroads into the profession. Healy perhaps overplays the notion of a 'firewall' in existence prior to the 1980s. The problem is not simply that medicine is being threatened by industry; it is that medicine is turning into an industry, and has been enmeshed, albeit in qualitatively different ways, in this process since the emergence of

industrialisation itself. If we fail to make that distinction in our understanding of the 'the conflict,' we could very well support the status quo. This is where the calls for STS to address the context of neoliberalism become very important. As Lave, Mirowski and Randalls (2010) put it:

> It is only by looking beyond what appear as rational, neutral claims about the proper role of science and its increasingly commercialised organisation that we can understand the influence of neoliberal philosophies. STS scholarship is ideally suited for revealing the continuous, diverse and sometimes subtle ways in which neoliberal stances are being promulgated and cultivated in diverse fields of study (668).

Lexchin's book *The Real Pushers* (1984) is an earlier text than the ones mentioned above, but it importantly outlines the concerns he has investigated throughout his career. In it, as well as in his more contemporary work, there is admittedly a belief in the objectivity of science. But importantly (and uniquely) he notes that this objectivity is constructed by social and political contexts.

Lexchin begins his chapter, *Medical Students, Doctors and Organised Medicine* noting that if health problems are prevented, no treatment is required. This very simple and rather obvious assertion is the root of his ability to 'think otherwise.' Thus as many critics of the drug industry note, he is not against drugs, but he is also not in favour of drugs as the most important part of medicine. He also attempts to describe the motivations of the drug industry: "Strategically, the industry seeks to convince the medical profession that the interests of doctors are identical to those of drug companies. To the extent that the campaign succeeds in achieving this identification, it ensures that doctors will view pharmaceuticals as the main form of medical treatment and will correspondingly prescribe more and more drugs" (Lexchin 1984: 103). Further, medical education prepares students for the alliance with industry (ibid). His description of how

the industry successfully courts the physician to be an ally puts the idea that the two entities are inherently distinct in question. Finally, he notes that in a capitalist society, socially created problems are "individualised," and governments are slow to react to problems when corporate interests are in question (224). In Lexchin's estimation, the companies, the doctors, the government and the patients exist in a social system. "Therefore, in the end, the real pusher has to be defined as the social system responsible for the proliferation of problems, inequities and harm in the pharmaceutical field, namely, capitalism" (224). Acknowledging that this is quite a daunting task, he also calls for reforms, but he does not accept that the social system must be the way it is.

Overthrowing capitalism aside, the most unique feature of Lexchin and Healy's work is that they do not accept the inevitability of industry influence in medicine. They understand that the industry is deeply inculcated in medicine, and that the project of parsing out these entities is daunting. Rather than even attempting to do so, as Lexchin puts it, a new system can "generate different ways of analyzing health and disease [and] provide a different model of medical education and different motives for producing drugs" (225). It is with this very simple assertion that sociologists should begin investigations into 'pharmaceuticalisation,' for perhaps the central feature of sociology is to imagine alternative worlds. Of course, first we must outline what is wrong with the one we're in. There is a need for sociological research attending to the history of the allegiance between medicine and industry and attempting to explain whether these categories have been distinct, and what distinguishes them. What could follow is a debate over the purpose of medicine, the determinants of health, and the possibilities to address health under capitalism.

It is reasonable to begin to address the problems with industry influence in medicine by taking on COI. Critics of industry from within medicine have registered a genuine concern about their ability to care for patients in a context where industry has such influence over which drugs are produced, how they are marketed, how research is conducted and shared and how medical education is undertaken. They want to address these problems with a clear set of regulations that can keep industry from contaminating the integrity of medicine. While COI is a useful starting point for addressing these issues, I argue that it should not be the finishing point, and that there is a need for critical debate about how medicine has been historically aligned with industry interests. If physicians wish to truly address the role of industry in medicine, they must attend to the power of the industry to shape the terrain to suit their interests, to influence regulations, fund medical research and lobby physicians – to be integrated in medicine and education. I have also argued that some policies that appear to address COI actually reinforce industry's influence in medicine.

Chapter Five: For Patients, Not Profits: Student Criticisms of Industry's Influence in Medical Education

In many ways the participants of this study took the lead from prominent scholars in the field of medicine who have been critical of the pharmaceutical industry, adhering closely to professional norms of altruism and patient-centred care when outlining their objection to industry influence. This chapter will explore the values that inform the participants' approach to medicine, and the ways in which they feel that industry threatens or simply differs from those norms. In the interviews I conducted with participants, I sought to understand that divergence. I first asked students why they went into medicine, then asked them if there were principles that informed their approach to medicine, and following this asked them if there was something about the pharmaceutical industry that was different from or in opposition to those principles. The students who participated in this study identified as critical of industry. I wanted to explore the values informing their approach to medicine and their perspectives on the values underlying the pharmaceutical industry's approach to medicine, to see whether, and how, these values were posed in opposition to each other. The results of these interviews are organised in the following chapter in the order in which the questions were asked. The responses reveal that students have a clear sense of why they are studying medicine, informed by quite traditional professional norms. They also reveal that the problem these students have with industry influence was often articulated in terms of extraordinary profits incurred by industry and the troubling presence of a profit motive in medicine. This concern over profit was not always present in popular texts criticising the industry from within medicine, and certainly did not exist in the texts from regulatory bodies seeking to

address industry influence in medicine. A significant number of participants did not feel that the medicine they wished to promote and practice should be profit-driven and saw the industry as primarily motivated by profits. Their concern about profit is tied quite clearly to their commitment to putting patients first – which is a central theme of the professionalism literature. Thus, when articulating their concerns about the pharmaceutical industry, these participants take up the key features of the recent professionalism literature, and many specifically mentioned their concern about the role of profit in medicine.

As the previous chapter indicated, professional norms have been mobilised to respond to the commercialisation of medicine. As Hafferty and Castellani (2011) argue, following the call from medicine to recommit to an ethic of professionalism in the face of commercialisation there was an effort to formalise these ambitions. Along with a move to encourage curricula that would teach professionalism, there was an internationally endorsed *Physician's Charter* – a joint product of the American Board of Internal Medicine Foundation, the American College of Physicians –American Society of Internal Medicine Foundation, and the European Federation of Internal Medicine. The document, entitled *Medical Professionalism in the New Millennium: A Physician's Charter,* appeared in both the *Annals of Internal Medicine* and the *Lancet* in 2002. In an editorial accompanying this publication, then Annals editor Harold C. Sox wrote:

> Many physicians will recognise in the principles and commitments of the charter the ethical underpinning of their professional relationships, individually with their patients and collectively with the public. For them, the challenge will be to live by these precepts and to resist efforts to impose a corporate mentality on a profession of service to others. Forces that are largely beyond our control have brought us to circumstances that require a restatement of professional responsibility. The responsibility for acting on these principles and commitments lies squarely on our shoulders.

This statement clearly delineates the document as a response to what he refers to as the 'corporate mentality' in the context of medical practice. It also relieves physicians of the responsibility for creating the new emerging culture of medicine, by attributing that corporate mentality to 'forces that are largely beyond our control.'

AMSA has explicitly referred to the *Charter* in their campaigns. Their website features a section for the "Medical Professionalism Action Committee" which states that their goals are to provide physicians in training with "skills needed to operate as model professionals in the current shift towards a health care system based on teamwork and patient-centered care which aligns with the following Charter," followed by a link to *Medical Professionalism in the New Millennium* (AMSA 2013). Since the *Charter's* publication, it has been endorsed by more than 130 organisations and translated into 12 languages, and more than 100 000 copies have been distributed worldwide (Cassel et al. 2012).

Celebrating the document's 10th anniversary, Cassels and colleagues write that its influence is demonstrated in the fact that medical schools have embraced professionalism as a core competency for trainees, adopted the Charter's principles into their institutional codes, and created institutes dedicated to the advancement of professional behaviors (ibid). The Charter is apparently distributed at "white coat" ceremonies welcoming graduating medical students to the profession. "If anything, the Charter's relevance today exceeds its salience in 2002" write the authors, suggesting that difficult times are ahead with increasing costs of health care.

The Canadian Medical Association was quick to endorse The *Charter*, stating in a 2002 Editorial that it "rises above disenchantment by refitting Hippocratic principles to

withstand the corrosive effects of globalisation, corporatism, privatisation and greed," and that it is idealistic, "but the profession must remain idealistic and fundamentally altruistic if it is to survive as a profession and not as a servant of the notion that the market is capable of producing both prosperity and equity" (CMAJ Editorial 2002). They acknowledge that cuts in health care budgets driven by "fiscal uncertainty and neo-liberal politics" have come with creeping privatisation and profitisation (CMAJ Editorial 2002). These words suggest that they identify the profit-motive in medicine as the problem, but the solution does not seem to be to address that motive. Instead, its influence can be avoided if individual physicians act professionally.

The *Charter* is founded upon three principles: the primacy of patient welfare (which entails an altruistic relationship to the patient); patient autonomy; and social justice. The latter refers to fair distribution of health care resources. It then outlines a set of professional responsibilities, such as professional competence and honesty with patients. Interestingly for the purposes of this study, one of the responsibilities is the "commitment to maintaining trust by managing conflicts of interest," meaning "physicians have an obligation to recognise, disclose to the general public, and deal with conflicts of interest that arise in the course of their professional duties and activities" (ABIM, ACP, European Federation of Internal Medicine 2004). This document contains the key pillars of the movement for professionalism outlined in the previous chapter, both in its commitment to place the needs of the patient first, and its contention that the profession should self-regulate. In the context of "an explosion of technology, changing market forces, problems in health care delivery, bioterrorism, and globalisation," The Charter seeks to reaffirm "fundamental and universal principles and

values of medical professionalism" (ibid.). These ideals are structured as a re-affirmation of apparently already existing and universal values of the profession. Thus the context is notably the corporatisation of medicine, but the values responding to that corporatisation are not framed as anti-corporate. The values are universal – almost in a realm beyond the trappings of capitalist accumulation and neoliberalism.

Participants of this study drew from the positions outlined in this key document, sometimes almost verbatim. This does not necessarily mean that they were familiar with the *Charter* – in fact only one participant referred to it. However, it speaks to the importance of documents like this in setting and reflecting an ideological standard and a ready-made rhetoric. In some ways this document embodies the 'ideals' of the profession in a modern context and speaks to the concerns that participants of this study mobilised to oppose. The ideals represented in The *Charter* informed the values that students brought to their studies of medicine.

A 2007 survey found that while most physicians agree with the *Charter*, half don't follow it (Campbell et al.). This dissonance between the ideals of medicine and the practice of medicine is a theme of my study. Much scholarly work on medical student 'culture' has argued that medical students are 'idealistic' at the beginning of medical school, and that this idealism gives way to cynicism somewhere in the course of their training.'[20] In the following chapter I argue that in this particular cohort of students, the effort to cope with an environment that represents a conflict cannot be described as cynicism.

The argument that medical students have ideals that motivated them to become medical students, and which continue to motivate them throughout their education, is

[20] Becker et al. 1961, Shapiro 1978, Brody 2007, Austed and Kesselheim 2011

not new. Neither is the observation that these ideals change over the course of medical education and into the practice of medicine. I cannot speak to the trajectory of the participants of this study, because I did not study their opinions over a period of time, or make a comparison. I did, however, speak to students at all levels of medical training, from first year to post-graduate training. This study cannot make any general claims about medical students. I can conclude from their testimonials that they are not cynical, even if some did come to believe that industry influence was inevitable. In fact the opinions of medical students, like the opinions of all social actors, are informed by context, change over time, and are sometimes contradictory. They do have ideals. I explore the way that these ideals are articulated by students. They do feel pressure to adapt to the norms outlined by their profession. They also assert their own opinions and values. Their struggle to exercise their ideals in a context that is consistently putting those ideals in question represented a struggle of consciousness.

I did not investigate correlations between these students' ideas and behaviours and their 'demographic' attributes – their gender, ethnicity, etc. I made an effort to speak to a demographically representative sample of students, coming from very diverse backgrounds; most were women, 30 per cent were visible minorities and most identified with a cultural or ethnic minority. It is possible that their critical perspectives are at least partly informed by their membership in equity seeking groups traditionally under-represented in medicine. Experiences of discrimination of oppression can sometimes lead to a more critical understanding of social structures. But none of the students spoke about oppression or discrimination. Only one student rather tangentially noted that he had been associated with the Taliban when he spoke out about industry

influence. During the interview it occurred to him that this might have been because he was a person of colour.

Medicine as Advocacy

The participants in this study went into medicine for a variety of reasons. Most of the students who answered this question said that medicine combines science with the ability to work closely with people and put science into practice, as the following quotations demonstrate. A student from a school in Ontario, in his first year of residency at the time of the interview said:

> I went into medical school because it was the only profession that allowed me to work on both the micro and macro level of improving others' lives and have both sort of immediate outcomes where, you know, somebody sick and you treat them, they're better. And also work on the health of the population as well.

A student from a University in California in his second year of medical school at the time of the interview said:

> In terms of advocacy, public health seemed to be a really broad way to explore my beliefs in an academic setting. Um and then by extension I think while public health allows you to see it macroscopically, medical school allows you to see it microscopically. On an individual basis I think with both perspectives you get a remarkable insight into how the system functions or is supposed to function. And also quite plainly I really get satisfaction out of helping people. There's some self-reflection on that – there's altruism – like I really want to help people. But there's no denying that there's a great deal of selfishness in altruism – that I get satisfaction out of helping people, by feeling important.

Many of the participants also noted that they were interested in using medicine as a foray into political or advocacy work. A number of participants specifically said that they wanted to use their education in medicine to change society – they planned to go into international health, or work with the Red Cross, or with community-based organisations. A student from Alberta in her fourth year of medical school at the time of the interview said:

> There's all kind of administrative or leadership roles you can pursue and so I think it just opens a lot of doors. I mean what I have found more specifically now that I am in medicine is that healthcare providers have a more personal relationship with their patients and I think that's a really fantastic opportunity to be able to empower them. And that's one of the reasons that I'm interested in obstetrics and I need because I find that a lot of women are really disempowered regarding their sexual health and um, I think that's something there's a lot of room to do.

More explicitly, a student from Ontario who was doing post-graduate work at the time of the interview said:

> To change the world. I think we change our community and our context and that is how the world changes and that's my reason for being in medicine.

A student who studied at a University in New Mexico and was in his third year of a family residency at the time of the interview said:

> I went into medicine partially to take care of people and partially to use medicine as a tool – seeing myself as an activist first and physician second.

Another student grew up in India around children with disabilities, so saw firsthand how a lack of medication or a lack of having access to a physician could affect a person's life. He wanted to do something about that problem. Another student from a University in Ohio in his third year of medical school at the time of the interview said:

> Really the people who get things done are in, either you have to be a politician or you have to be a doctor. And I really liked the idea of combining those issues – of both being like an advocate for patients, a policy person, but also actually having the patient care.

Thus while most students in the study focused on helping people, many explicitly said they intended to use their role in the profession to somehow change society. This was reflected in the discussion of their history. Most did not identify as activists, but said they had encountered a critical perspective on industry and medicine in another degree, such as public health, or the social sciences.

Critical Beginnings

Almost all of the participants from the U.S. had had some sort of exposure to a criticism of the industry prior to starting medical school. Some had read books or seen films that criticised the industry's influence on medicine. Often they didn't remember the name of the book or film, but had a memory of exposure to a critique. They would say things like: "Anyways it was basically another exposé on how we were medicalising things that never would have been treated before and then how, you know, advertising in the states, which is allowed, pharmaceutical advertising in the states on TV, was influencing people's seeking of medication." Six participants had a background in health policy or public health sciences, and approximately fifteen had an undergraduate degree in the arts or social sciences. Some of the students who had the latter background talked about the fact that they had been exposed to a critical perspective on industry through their post-secondary education outside of medicine or science.

A few students had been activists in the labour movement or the student movement. These students tended to be critical of not just the industry but the broader societal structures that support industry's influence in medicine. One student studying at a University in Oregon said: "Well I'm kind of an activist type. I have liberal to radical political beliefs and uh, I spent a while after I got my undergraduate degree visiting different communities of people who I felt were doing the best work in the world." But this outright identification as an activist was rare. A number of students did not want to stand out or identify as an activist. One participant who went to a school in North Carolina said:

> I at least came to a point where I said 'my ethical default should be I won't take anything [from drug companies] until I have looked for myself and make sure that

> taking these gifts doesn't infringe on the patient/physician relationship. That was my simple- I wasn't setting out to be an activist, I wasn't setting out to do anything other than as opposed to the default – take it because everyone else is doing it. I would say my default would simply be the opposite. Don't take it until I have independently looked for myself, started the, looked at you know some of what has been published and whether this does or doesn't influence physician behaviour and- until I'm convinced that it doesn't influence haw I'm going to practice medicine in a way that's harmful and detrimental to my patients I won't take anything. That's how it started.

Notably, this student ended up being very active on his campus, giving talks and organizing petitions, going on to take a leadership role in AMSA.

Some students said their critical perspective started early in life. One participant gained a degree of skepticism from his family. His father was a speaker for a drug company and met his wife, the participant's mother, when she was giving away doughnuts as a drug rep at his hospital. He joked that when he speaks about his criticism about industry he has a genetic conflict of interest. Another participant from a school in New York, whose mother worked in a clinic, said "So even when I was a little highschooler it was my rebellion it was 'mom, don't bring home any food from them, don't talk to those people, don't look them in the eye!' [laughing]."

Most of the students from the United States said that they really started to develop skepticism about industry after getting involved with their local AMSA chapter. AMSA chapters work on a number of issues, bringing in medical students who want to work on supporting health reform, doing AIDS advocacy, engaging in professional development and many more activities. At times exposure to the organisation led to activism in the Pharm-Free campaign. Sometimes a student was curious about industry influence in medical education, encountered the Pharm-Free campaign and found that

their experiences resonated with the critique offered by the campaign. As a student at a University in Nevada put it:

> I remember looking at things online or some old prof's things and I read about AMSAs Pharmfree movement and I was like 'Wow, that's totally, like I get it, Wow!' and you know they outlined all the little things that the companies do and I was like I totally saw every single one of those tactics and I didn't, it didn't really click until right around then.

Another student from a school in Connecticut said:

> I remember being truly shocked going to the AMSA learning institute and just the presenters that presented the whole psychological basis of the influence that was very valuable to me and that convinced me that was enough to be like 'look, this is absolutely wrong.'

A couple of participants had worked for industry and found that their work conflicted with their values. A student from a University in Oregon said:

> Um I actually spent a year making presentations for pharmaceutical industry for their management. So I have from background information on it one of my main drivers going into medicine was uh, um, kind of an ethical compulsion to enter a field. I changed careers to enter a field that I thought was ethically as pure as possible.

Another student was a former detailer for a drug company. His job was to talk to physicians, mostly residents, about his product.

> Right. So basically the principles in which we operated um, didn't necessarily correspond with what I believe. I, I, but I think more than that a large part of pharmaceutical sales relies upon the sales rep's ability – the sales rep's complete faith in their product. That sort of zealousness that happens during sales school that when you come out you overwhelmingly believe that your drug is going to help a whole lot of people and the only thing that is impeding you from helping these people are a bunch of ignorant doctors. Over time a reality sets in and you get a more balanced perspective. And eventually that will lead into a jadedness. And so not surprisingly as most drug reps, I drank the Koolaid. And the Koolaid lasted for about six to twelve months before cynicism sank in, reality sank in, and I pretty much sustained it for about a year after that before I realised that this is not anything that I ethically believed in. It's not an unusual story. There's a high turnover among drug reps - you'll see most of them will wrap it up after about a year or two and go on to different fields.

Canadian students who talked about exposure to a critique were similarly influenced by literature, and some shared an 'activist' orientation through grassroots movements. One student had been involved with campaigns about the corporatisation of the university campus and advocacy for immigrants and refugees. Another student had been involved in a number of social movements and acted as a student representative on his institution's governing council.

Professional Values

I wanted to understand why these students opposed the pharmaceutical industry. Some specifically mentioned the critical literature in this area, but most just articulated a feeling that it was a problem. In order to uncover the foundations of this opposition I first asked students if they had a particular ethos when approaching medicine – a value system. Sometimes, as in the following exchange, this was difficult to access, because the student had not thought of their approach as a "value system."

> Kelly: Is there an underlying principle or ethos that will inform you as a physician?
> Participant: Ethos?
> Kelly: A value system.
> Participant: A value system?
> Kelly: Um, [Participant: Like, that all physicians should have?] No, that you will have. Like a personal thing.
> Participant: If it's good for my patients I'll do it. And it has to be good in all walks of, you know if, it has to be good for them physically or spiritually or like mentally, or like humans are far more complex than the medicines we give them.

Their answers were very diverse (they are presented as a table with participant quotes as descriptors in Appendix 6). Not all participants described their perspective on medicine, and some responded in a way that could not be coded because they talked about their life history or told an anecdote that encapsulated their "ethos" or "value system." Or they made a general comment about how they would practice. A student

from Quebec said "Hopefully I can be as human as possible. That means making mistakes but also listening to your patients and being there. Follow what is going on. Always on top of your game and reading and reading." But many actually fit well into a code because the students specifically mentioned a principle of medical ethics or professionalism. Many reiterated the very words of the *Charter*. It is important to note that this is not the result of a survey where I asked each participant the same question in the same way. In some cases interviews were taken up entirely by discussion of the campaigns participants were engaged within. This happened more with participants from the U.S, which speaks to the fact that I have recorded fewer instances in which they speak about the principle that guides them. It is also important to note that some students spoke about several different sorts of principles that guide them. This more detailed discussion of principles took place more commonly with Canadian students.

Fourteen participants (5 from the U.S. and 9 from Canada) said the value informing their approach to medicine was to put patients first, or help people. For instance:

> Because you know, professionalism to me means always putting the patient's interest first because as a professional you enjoy a special relationship with society. You know, you're not - you don't have to run your business – you don't have to run your practice like a corporation, you don't have to worry about not having a job, you know like you're a professional you make a deal with everyone that you're going to do a certain thing. And that thing is to never do something that doesn't put a patient's interest first (Participant from U.S.)

Nine participants (three from the U.S. and six from Canada) said they were primarily concerned with access. Two of the students from the U.S. framed this question of access as the idea that health is a human right, and two students who emphasised access from Canada talked about universal access to health care in terms of social

justice. They framed the question of access differently, speaking to the funding models of the two different countries and the relevant respective struggles concerning access. A participant from the U.S. said:

> It's fundamental to having a healthy life and to being alive in many cases. And access to medicine I think is a very important aspect of that – like access to physicians, doctors. But you know just having access to a physician is not doing anything because I can diagnose a problem but if I don't have medicine for it the patient would die, so what's the point. So I think access to medicine has you know, having access to health care providers is one aspect and also having access to the health care itself.

This comment from a participant in the U.S. was different from the following comment from a student in Canada, in that the former addresses a lack of universal access to basic medical services, while the following addresses social justice on a broader scale, with health as a component of 'the distribution of societal resources:'

> Certainly an essential principle for me is the idea of social justice. And that's really the common theme that has been what's motivated me and what that means to me is the idea of fairness in terms of opportunities, access to resources like health care, and the distribution of societal resources. And I think medicine can play a big role in that.

Five participants mentioned the Hippocratic Oath (two from the U.S. and three from Canada) which some defined not just as doing no harm, but doing good. Four talked about improving lives (one from the U.S. and two from Canada). Three talked about critical thinking (two from the U.S. and one from Canada), which a student from the U.S. described as:

> Obviously using what I consider to be using good judgment. I guess that's kind of a broad term. Always think things through, don't just go with the flow. I think that happens a lot in medicine. I'm sure there will be times where I do something just because I'm told to do it even if I disagree but I'm going to try not to do that. Try and stand up when I can.

Other participants identified holistic care (two from the U.S., one from Canada), commitment and involvement (one from the U.S. and one from Canada), honesty, transparency, thoroughness and love (one from the U.S.), patient trust (one from the U.S.), dignity (one from the U.S.), 'utilitarian,' meaning striving to understand the greater good when making health care decisions (one from the U.S.), and caution (one from Canada).

These answers demonstrate that some of the values of the recent professionalism project (which is clearly similar to the old professionalism) have been taken up wholeheartedly by these participants. Particularly, the principles of 'patient's first' and 'improving lives' which speak directly to the *Charter*'s first fundamental principle, "Principle of Primacy of Patient Welfare,' and the participant principles of the 'Hippocratic oath' which speaks to the *Charter*'s mention of altruism. Some participants also took up what the *Charter* refers to as "commitment to improving quality of care," through clinical competence. Others address social justice, access and equity. But they have also elaborated upon the principles and integrated them into their view of medicine, and even broader social relations. For instance, they discuss dignity for patients, holistic care, (some spoke of this as integrative care that did not rely entirely on the allopathic model), thoroughness and love, and caution. I did not find striking differences between the principles discussed by Canadian participants versus U.S. participants. Canadian students generally talked more about the principles guiding their practice, but this could be because they spent less time in the interview talking about the campaigns they had experienced or helped to organise. What is perhaps interesting is that while both Canadian and U.S. students discussed access to health care as a key

principle, they used different language. U.S. students were more prone to use the language of 'rights,' and Canadian students tended to phrase the principle as one of distribution or justice. This could speak to the significant difference between the countries, where in the U.S. many people do not have access to health care at all – the health care system does not guarantee health care to every person. In Canada the health care system is flawed but provides a minimum level of coverage for every citizen. I did not ask participants to explain what they meant by access. I will suggest that they might be speaking to the uneven distribution of health care services, for instance, in terms of regional disparities for specialists and even shortages of general practitioners.

Some participants did speak briefly about the broader context of health care delivery when at the end of the interview, I asked if there were any alternatives to practicing medicine that is influenced by industry. Most often their solutions were framed as addressing conflict of interest (which I explored in Chapter Four) or as the need to practice evidence-based medicine (which I will explore in Chapter Eight). But a few discussed the need for better access to affordable drugs. CFMS was involved with promoting the National Pharmaceutical Strategy, which would establish a common National drug formulary in Canada based on safety and cost effectiveness. A few students from both the U.S. and Canada said that they believed there was a need to have more public funding for research. A student from the U.S. said:

> I mean my personal view is more that the research on things like pharm drugs should be less of a private matter, and more of like a public interest, I mean it is a public good, its knowledge, and it's one thing to have the people making a profit actually selling these drugs but it's another thing to have them also in charge of the research and the education on them.

Furthermore, students from both the U.S. and Canada supported universal access to health care, which meant different things depending on the country. AMSA has a "Quality, Affordable, Health Care for All" Campaign which advocates for a public national health insurance program. Students in Canada were not immune to concerns about access to health care, given encroaching privatisation and corporatisation of the Canadian healthcare system. Students for Medicare formed specifically to defend publicly funded health care given those pressures. One student from Canada lamented the power that corporations have to shape decisions about health care delivery, and concluded:

> I think we need a huge paradigm shift, not just for pharmaceutical companies but I think that would be an excellent place to start because at least arguing health is a human right is, is you know, should be reasonable.

This student both acknowledged that there needs to be substantial changes within and outside of medicine to address industry influence, but begins with a first step, one that seems reasonable in the given context. This is perhaps a motivation that shapes the other solutions put forward by students. In some cases participants acknowledge that the problems are structural, but wanted to start with changes at the local level (like implementing an conflict of interest policy) that would be seen as feasible and reasonable.

Opposition to Industry

After discussing the participant's values or ethos when approaching medicine, I asked if there was anything about the industry that was in conflict with these values. The majority believed that there is an inherent dissonance in the values of medicine and those of the pharmaceutical industry. When students talked about why they objected to

industry in their medical education, they expressed concern over industry bias affecting their knowledge or prescribing practices. Six students out of 18 from Canada and four students out of 19 from the U.S. mentioned this. Eight students from the U.S. and two students from Canada said that they thought industry influence threatened patient safety. And the most frequent objection to industry mentioned in the interviews was that of the industry's profit-motive. Ten students from Canada and seven students from the U.S. mentioned profit. Others talked about affordability of health care, the problem with the "pills" approach to medicine, where human beings are treated with drugs rather than holistically or preventatively, and an objection to a 'business' approach to medicine, where the physician is in it to make money.

The themes outlined here are connected. Bias is linked to patient care, because students said they were concerned that if they were trusting industry they would be prescribing the most heavily marketed drugs, not those that were the safest and most helpful for their patients. Patient safety was connected to profits, because as participants explained, an organisation that is primarily accountable to shareholders is not primarily accountable to patients. In this way it is difficult to neatly categorise these responses. Instead I suggest that there were three prominent and interrelated themes that appeared in the interviews: Industry bias, patient safety and profit.

Students who spoke of industry bias affecting their knowledge or prescribing habits were also committed to value-free or objective science, or 'evidence,' as demonstrated by this quote from a student at a Florida University:

> We need to be taught objectively what drugs matter and we need to be taught cost effective prescription policies we need to make sure that when we're prescribing drugs for our patients, we need to prescribe the generic drug, we

> need to prescribe the drug they can afford, we're prescribing not because we had it thrust in our face because we know through research that it is effective.

And this quote from a student at a Halifax University:

> I guess I should say I don't think they should have a biased influence. I guess in the ideal world I guess if if every company could talk to you about their drugs? To, to me that would be ideal because - because certainly we know there's a lot of drugs out there like there is a lot of drugs out there that are helping people? And it's important that we're educated on therapies because we're going to be prescribing these one day so in an ideal world there would be educated on every type of therapy. Um, but ultimately they're a money making business right? A private business and um we're sort of the people between them and money so I don't I don't think it's fair to influence partially because a lot of these drugs have varying costs and that that that would be my big reason.

Comments about 'bias' also frequently involved mention of conflict of interest as a threat to the integrity of medicine.

It is noteworthy that far more students from the U.S. were concerned about industry's effect on patient safety. Their comments betray first, skepticism about the reliability of the data provided by industry, and second, awareness of how the cost of health care is linked to patient safety, perhaps reflecting the difference in the delivery of health care in the U.S. and Canada. A student from Connecticut said:

> And so you know when you take advice from pharmaceutical companies that you know is potentially tainted you're putting that patient either at risk or maybe just not giving them exactly what's best for them. Not all of the information from pharmaceutical companies is wrong, but I often see flyers from them that are just like brazenly up-selling their data, you know, or down-selling bad data. And so, even listening to them is doing something that's unsafe in a sense because you're opening up the possibility for that.

A student from a school in California said:

> If you're prescribing something that's more expensive and there's something cheaper in the U.S. health care system that has a big impact. You're gonna have patients die because they couldn't afford medication and I know that there's something I could have done. I couldn't afford the medications for them. But you know, um, people die of infections in this country, people die of hunger in this country. I mean, people die of HIV in this country, I mean, people die of heart

> disease in this country. People who have emphysema, who don't have oxygen die in this country. If you can prescribe something that is more affordable than less affordable that has a big benefit. Furthermore, there's a lot of drugs that come out that have unclear adverse reactions and if there's only marginal benefit and the risk is unclear, now, are we cavalier about people's lives. And for what? A lunch?

It is possible that in the U.S., where adverse drug reactions contribute to more than 100,000 deaths every year and are among the top 10 leading causes of death (Wiktorowitz et al. 2012), patient safety feels more pressing.

Many students who were concerned about patient safety, biased prescribing habits and fair distribution also mentioned that what they found to be truly objectionable about the industry's presence in medicine was the fact that they profit from the drugs that they produce. In this way it is difficult to neatly categorise the participants' reasons for opposing industry influence in medical education. For instance, some would say that their primary objective is to put patients first, and that the industry puts profit first. A student from Ohio said:

> When you get to medical school you kind of adhere to this oath that you're gonna do the very best for your patients and the patient's interest always comes first. And I think when you have a pharmaceutical company, they're first of all, as a private company, they're shareholders, and also I mean that's not their only goal, I mean a lot of their scientists are very interested in research, a lot of them have very strong track records of charitable contributions and things, but the first goal is to advance their product. And I think that does come into conflict, indirectly if nothing else, with kind of this patient's best interest first.

Several students explicitly said that the problem they had with the pharmaceutical industry was that its underlying purpose is to maximise profits, insinuating that this is not the underlying purpose of medicine. Many had no particular objection to for-profit businesses – they just thought it should be completely distinct from medicine. A student from Boston said:

> Um, I mean, I don't know because at the end of the day I see pharmaceutical companies like just like any other business. They're putting out a product and they want to maximise their profits. So I can't really say that their, their mission to maximise the profit is wrong because they are just a business.

A student from New Mexico said:

> My personal feeling is that the pharmaceutical industry answers to shareholders and therefore they answer to a simple question – how do we make the most money in the quickest amount of time. I don't think it's fair to say that they're in conflict. I think they're a business and medicine is not a business.

A student from California made it clear that what she found troubling was that these profits were directly dependent on the medical profession:

> The commercialisation of medicine, drug companies being one part, but not the only part, is a major problem. The need to make money off the profession, it's insidious, it's destructive, it's hard to eradicate, it builds an ethos of individualism, it's affecting education.

The above comment addresses a concern about profit, but also what the commercialisation of medicine means for the profession – 'it builds an ethos of individualism.' The responses from students in Canada were very similar in their objection to the commercialisation of medicine, but different in their broader objection to a market-model of health care delivery. Some answers from Canadian students concentrated on the Hippocratic Oath. The participant saw the industry as a threat to the commitment to do no harm. A student from Ottawa said: "I think we're often taught do no harm, but it's not just do no harm, its do good. Do as best as you can and then some. So I guess it's do no harm, but the positive of do no harm." Several addressed the consistent theme from participants that they were troubled by how the industry's interests in profits could undermine the importance of patients' needs. A student from Alberta, like others, indicated that he did not think an industry motivated by profit could prioritise proper care for patients:

> The pharmaceutical companies, they have, I mean, fundamentally their interests just is and generating profits and so, our interests are primarily or should be primarily in providing proper care to the patients? And so these interests aren't necessarily always going to align and so if we don't work to minimise the undue influence of the pharmaceutical companies I think that can impact the care of our patients in negative ways.

Another student from Alberta was also concerned about how patients fare when profit enters into the picture. He said the problem is:

> For-profit. They're profiting from healthcare. They're profiting from the ill health of people. So they have a vested interest in keeping people unhealthy. That's what gets me.

A student from Ontario also noted that patients can suffer when for-profit companies have such an influence in health decisions. She said:

> But what's sort of more insidious and hard to put your finger on is pharmaceutical companies, the industry, is based on a market model of the world...they're driven like all corporations and all industries for profit. And they look at patients not as patients but as consumers of their product and their interest is in market share. That ideology starts to permeate into medicine because they, you know, will use those ideas and that philosophy to engage with people.

This student takes up a theme from participant responses about how the market model of health can influence medicine as a whole. Another student from Ontario said:

> So the pharmaceutical industry, obviously they're, like I said, they are a corporation, their prime goal is profit, which is very different from the prime goal providing medical care, right? Especially in Canada were we believe in universal access to healthcare.

This mention of Canada is important given that most of the above quotes concerning the market model of health are from Canadian students. This perhaps speaks to the context of the funding models of the two countries. In the U.S., the market model of health care delivery has a long history, and thus may not appear to be as noteworthy as in Canada, where there is at least a commitment to a public model of funding that has been subject to encroaching privatisation in recent years. Participants from both the

U.S. and Canada seemed to be invested in distinguishing medicine from industry in that the primary purpose of medicine is to value patients needs over profits.

Participants seemed to be informed by critiques of for-profit healthcare both from literature on that topic and from movements to support publically funded healthcare. Some were critical of for-profit initiatives in general, even naming capitalism. A student from the National College of Natural Medicine said:

> Capitalism does not mandate us to love. It does not mandate us to be honest. It does not mandate us to be transparent and it does not mandate us to be thorough. It says 'make money!' That's what it does. So if you're running a company you're not necessarily at odds with it but you're not holding true to the principles that guide me.

Some participants were fine with for-profit ventures elsewhere. They just drew a line around medicine as something that needed to be shielded from that motive. A student from Alberta said:

> I don't think medicine is a commodity. Any component of it...including pharmaceuticals. And so I absolutely respect intellectual property but I feel like it's not a car – it's not a luxury. I think having treatment options available isn't a luxury. So to have someone come in and try to make it sexy to a physician and kind of schmooze them with products is sort of – I think it's wrong.

A student from Ottawa said:

> I think that the pharmaceutical industry exists to make profit. And I think that there's no profit in cure – there's profit in treatment. So I think that I mean it's legitimate – they have corporate interests – that's fine, that's legitimate. But I think the problem is that it's sold as this altruistic field – they're producing medications that will save people's lives and that really isn't the reality. They exist for profit. I think that if it was portrayed as it is in truth that it is a money making organisation – yes doctors need those services but it's not the pharmaceutical industries that are providing care, they exist to make profit – I think just establishing that would be good.

Participants diverged on whether profit was inherently wrong, or whether it was just wrong for medicine. And to be clear, not every participant mentioned profit. The

discussion of the problems with the profit-incentive in medical practice, however, was notably frequent throughout the interviews.

In conclusion, the students in this study perhaps represent an unusual subset of medical students: thus it is not possible to generalise their experiences or values to a broader student body. What is important about their testimony is the insight it generates about the growing movement of students opposing industry influence in medical education. I suggest that these participants' values are rooted in an approach to medicine that reflects the broader movement of professionalism (altruism, bias-free evidence and patient safety), that they are drawn to criticisms about commercialisation of medicine organised within the framework of professionalism. Furthermore, that in keeping with some of the themes present in that literature, for instance, the *Charter*'s mention of the importance of professional responsibilities over private gain or personal advantage" (ABIM, ACP, European Federation of Internal Medicine 2004), and the *CMAJ*'s attention to "the corrosive effects of globalisation, corporatism, privatisation and greed" (CMAJ Editorial 2002), they are particularly concerned with the role of profit in medicine. I find it interesting that the word profit entered into these interviews as such a frequent objection, given that it is not a prominent idea in the *Charter* or other important texts I have mentioned in this chapter. But its meaning in these interviews seemed to be tied to a fairly consistent historical concern for the profession: that the role of medicine should be altruistic, not self-interested.

The efforts undertaken by physicians and students to distinguish between medicine and business are perhaps motivated by their intention to establish trust with patients (and also authority). It may also speak to a conscious uneasiness about the

fact that the profession has been quite closely embedded in a profit-oriented economic structure. The participants of this study appear to be catching on to that interrelationship early in their training. Some were willing to entertain a criticism of the role that profit plays in the broader economic structures of society in their discussion of capitalism. But most just want to separate the profit motive from medicine. In this latter project, the profit problem can be addressed with the professionalism solution. While professionalism is clearly a collective effort, this focus on physician behaviour can reduce the network of social, economic and political relations to the interaction between physician and patient, neutralizing the political dimensions of how profit is central to the corporatisation of medicine.

Chapter Six: Managing the Conflict: Medical Student Interactions with the Pharmaceutical Industry

> I think even before I knew a lot about industry and kinda the way that they market their drugs I think that I had a sense that what was going on was not education but was marketing. And I think um that's what made me uncomfortable is that we were taking time out of our day seeing patients and you know taking care of people and helping them and taking care of whatever health issues they were having, to listen to a marketing spiel. It felt like, you know, that we were watching TV, you know, watching a commercial on TV for a drug and, I don't know, that seemed, it didn't seem to strike me as unethical at the time but it did strike me as kind of a waste of time and um, and I think now looking back I feel like the sum of those interactions over time can change the way that people act (A student practicing as a resident in Oregon).

The quote above summarises the primary findings of my investigation into industry influence in medical education from the perspective of activist medical students: that the participants have a problem with industry influence because they see it as marketing, that they don't necessarily have time to process this discomfort at the time of their medical education, and that marketing can change clinical practice over time because of the fact that it is the implicit and assumed 'culture' of medicine. Something about industry influence causes uneasiness amongst participants, and this was often the starting point for the development of a critical consciousness about industry influence in medicine.

My research pays attention to the way that medical students interpret and negotiate industry influence in medical education when it represents a problem for them. The participants of this study engage in complex thoughtful negotiations to manage the conflicts that industry represents for them. My analysis departs from the 'culture of entitlement' hypothesis, where the duty and commitment medical students have at the beginning of their education fades and is replaced by cynicism. The participants of this

study reveal that they are quite principled, and that when their ideals are challenged by an approach to medicine that they find troubling, they make a genuine attempt to address this both in their ideas about medicine and in their practice of medicine.

My investigation reveals that according to these participants, industry is present throughout medical education in the United States and Canada, though not in every context, and not always obviously. Students who identify as critical of industry react to this presence through a number of strategies, which I suggest exist on a continuum from avoidance to resistance. In this chapter I will review the literature on industry influence and medical education and discuss the findings of my investigation of student reactions to and interpretations of this influence. I see the influence of industry and reactions to it as interrelated. Industry influence is not an outside force, looming in the classrooms and clinics that constitute the setting of medical education for the participants of this study. Instead, it is integrated into the way that students learn, in sometimes imperceptible ways, meaning that accounts of influence sometimes involve the students' efforts to bring that presence into view, to notice it, to talk about it, and to make it ' an issue.' Furthermore, particularly in the context of the clinic, industry influence was a practice. Physicians and students met with pharmaceutical industry representatives, collected free samples from reps, prescribed the latest marketed drugs, and attended lunches and dinners hosted by pharmaceutical companies. As Oldani (2004) has pointed out in his autoethnographical work on being a pharmaceutical industry representative, "the core of the pharmaceutical salesperson and prescription writing agent's (e.g., doctors, nurse practitioners, and physician's assistants) relationship relies on the exchange of gifts" (331). He is careful to note that the many

practices and tactics of pharmaceutical reps involving gifts like pens, samples, meals, travel, etc., are interrelated and socially embedded, sometimes over decades (Oldani 2004: 332). The approach that Oldani (2004) outlines is multifaceted and deeply integrated into the everyday social world of medical training and practice: The actual everyday pharmaceutical economy is based on social relationships that are forged and strengthened through repetitive and *calculated* acts of giving" (emphasis in original). While participants of this study often entered the clinic with an awareness and a skepticism about industry influence, the continual, and rather incipient presence became something they learned to manage.

Students could accept industry influence as the way to practice medicine, avoid practicing medicine in this way, negotiate a compromise, or outright resist. The participants of this study took up all of these strategies at different times, meaning that the presence of industry, along with the reaction to it, was not static. With this observation, this chapter integrates reports on influence with accounts of participants' interpretations of that influence. Ultimately I argue that students do not simply absorb industry presence, but interpret it in complex ways and act accordingly.

The students who participated in this study self-identify as being critical of the pharmaceutical industry. Most do not describe themselves as possessing a radical analysis or agenda but rather wrestle with the conflict, outlined in previous chapters, between the ethical norms they associate with being a physician – altruism, value-free scientific interest, and patient care – and the profit motive in industry. I rely on student reporting to understand influences on medical education. Current studies of trainee behavior resulting from interactions with industry have asked participants to report on

their own past or expected future behaviours in fixed questionnaire responses. By contrast, this investigation views marketing as a social interaction and thus attempts to understand how students respond to those efforts through open-ended interviews. It is possible that because the participants of my study are critical of the industry's presence they pay more attention to it, and notice it more than those who do not care, or who tacitly or actively endorse it. By speaking to the students who do recognise marketing efforts it is possible to gain a more in-depth understanding of how the industry markets to students, revealing a richer and more complex set of social dynamics involved in the meaning of industry presence in medical education and the negotiations that take place as it is produced as a social relation. Because they are critical, they pay attention to the visible and invisible ways the industry is present.

Review of Literature on Medical Students and Industry Influence

Research on industry influence in medical education has taken place almost exclusively in the fields of medicine and medical education. It has focused on continuing medical education, rather than the preclinical and clinical portions of medical school. The literature that has addressed industry influence in medical education has measured student perception of the influence with the use of surveys or has compared conflict of interest policies across institutions. This literature has consistently demonstrated that there is clear and pervasive influence of the pharmaceutical industry in medical education, that students' perceptions of and reactions to this influence are changing, and that students feel undereducated about this issue. The more interpretive questions about how industry influence has affected the quality and content of medical education have not been explored though this research. Rather, the focus from medical

researchers and educators has been to attempt to demonstrate that industry presence exists and affects the learning environment.

As Aaron Kesselheim (2013) recently argued in an Editorial in *the British Medical Journal*, there is remarkably little data on the effect of student-industry interactions, apart from small surveys indicating that these interactions are associated with positive attitudes about industry marketing and skepticism about its negative consequences. In a review of the literature reporting on these surveys of student-industry interaction, Austad, Avorn and Kesselheim (2011) argue that there is substantial contact with pharmaceutical marketing throughout medical education, and this is associated with medical students' positive attitudes about marketing and skepticism about negative implications of these interactions. The researchers searched peer-reviewed articles on medical students and the pharmaceutical industry or conflict of interest, and found 33 articles eligible for analysis, reporting on primary research (mainly cross-sectional surveys) between 1971 and 2010. As reported in these studies, medical students' exposure to industry involved gifts, industry sponsored educational sessions, and direct communications with sales representatives. Most students in the clinical years reported having accepted a lunch or snack provided by the pharmaceutical industry. The review notes that contact with industry increased over the course of medical school (Austad et al. 2011: 3). Students attitudes were "variable and occasionally contradictory" (Austad et al. 2011: 3). Many approved of meals, small promotional items and gifts with an educational purpose but were less accepting of social events and travel. In most studies the majority of students in clinical training found it ethically permissible for medical students to accept gifts from drug manufacturers, while a minority of pre-clinical

students felt this way. A consistently held student attitude was the belief that education from industry sources is biased, particularly among clinical students (ibid). The researchers state "Despite this, students variably reported that information obtained from industry sources was useful and a valuable part of their education" (ibid). The study also reports that most students did not support excluding sales representatives or industry presentations from the learning environment, and students were split on whether physician-industry interactions should be regulated by medical schools or government (Austad et al. 2011: 6). Also most students did not feel adequately educated on physician industry interactions (ibid).

Zipkin and Steinman (2005) also offer a thematic review of the literature on pharmaceutical representatives and doctors in training from 1966 to 2004, concluding that the pharmaceutical industry has a significant presence during residency training, has gained overall acceptance of trainees, and appears to influence prescribing behavior (Zipkin and Steinman 2005). Zipkin and Steinman's (2005) review found that pharmaceutical representatives interact frequently with trainees and provide small gifts during sponsored meals, conferences, and scientific meetings. Attitudes towards interactions with and information from pharma reps varied in different study settings. At least two studies suggest residents from programs with regulatory policies took a more skeptical approach to interactions than residents from programs without policies (Zipkin and Steinman 2005: 781). Individual residents believed themselves to be more immune to industry than their colleagues (Zipkin and Steinman 2005: 781).

One of the most pertinent studies in this body of literature is a national survey distributed to 1143 third-year medical students at 8 U.S. medical schools, with a 72.3

per cent response rate (Sierles et al. 2005). It explored student exposure and response to drug company interactions, concluding that students are "at risk for unrecognised influence by marketing efforts" (Sierles et al. 2005: 1034). Ninety-three point two per cent of respondents had been asked or required by a physician to attend at least one sponsored lunch. Sixty-eight point eight per cent believed gifts would not influence their practices and 57 per cent believed gifts would not affect colleagues' practices. Eighty point three per cent believed that they were entitled to gifts. Even of the 183 students who thought gifts valued at less than $50 were inappropriate, 86.3 per cent had accepted one. Eighty-five point six per cent did not know if their school had a policy on these relationships. There have been few Canadian studies exploring this topic (Hodges 1995, Barfett et al. 2004). Those that exist are consistent with studies from the U.S. For example, Barfett et al. (2004) surveyed medical students at the University of Western Ontario about their attitudes towards pharmaceutical marketing practices in 2004. Out of 202 respondents, pharmaceutical sponsoring events or educational seminars during medical school was acceptable to 66 per cent.

Some more recent studies from the U.S. in this area suggest that there are changes afoot (Hyman et al. 2007, Misra et al. 2010). For example, a study from Harvard refuted some of the above results. Hyman et al. found that a minority of 418 medical student respondents in 2003-2004 believed it was appropriate for medical students to accept gifts from pharmaceutical companies (2007). This difference might reflect the political mobilisations on the subject of conflict of interest at Harvard University, which will be described later in the chapter. Harvard has been a pioneer of student-led reflection on the problems with industry influence in medical education. But

even with the more critical consciousness at Harvard, in other ways the students' responses were similar to those reflected in other studies. Sixty-one per cent reported that they do not feel adequately educated about interactions between the pharmaceutical industry and medical professionals. A study at Northwest Academic Medical Centre (Misra et al. 2010) revealed that of 58 surveys completed by faculty psychiatrists and psychiatric trainees, two thirds did not agree that pharmaceutical reps have an important teaching role. Fifty-three per cent of trainees agreed that pharma reps should be restricted from making presentations on campus. Trainees were also less likely than faculty to agree that they would maintain contact with reps if no gifts or food were distributed. The frequency of industry interactions seems to remain high (90 per cent had attended an industry sponsored event in the previous year) but the skepticism appears higher than in the results of the review by Sierles.

The authors of the study at Northwest Academic Medical Centre say there is a reason for this increased skepticism: "In summary, unlike past cohorts, residents in recent years have trained during a time when major medical organisations have issued cautionary guidelines and position statements, and campuses have received media attention for banning pharmaceutical industry presence" (Misra et al. 2010: 102). Thus this article suggests that there has been a shift in the past decade regarding attitudes of medical students.

The literature seems to indicate that there is merit to the theory that students are becoming more critical of the pharmaceutical industry. This shift could be due to guidelines, positions statements and media attention about the pharmaceutical industry. It is possible that guidelines proposed by accreditation councils and faculties have had

an impact on the opinions of students, but my study complicates that explanation and suggests that there are also other factors. I consider the influence of student organizing on the subject of industry influence. The participants of my study clearly represent a particular cohort of students who are critical of industry influence. Thus my findings do not speak to whether students in general are becoming more critical of the pharmaceutical industry. They do, however, illuminate some other aspects of the literature. Mainly, the tensions and justifications are explored. I seek to understand *how* substantial contact with pharmaceutical marketing throughout medical education is associated with these medical students' attitudes about industry influence. In exploring students' ethical, moral and professional deliberations over this dilemma, I complicate the matter and add some depth to the literature in this area.

The second category of survey-based literature in this subject area is educational interventions to address industry. In 2005 Barbara Mintzes conducted a WHO/Health Action International (HAI) cross-sectional, international survey of education initiatives on pharmaceutical promotion, finding that many medical and pharmacy facilities include this topic in their curriculum, but most spend less than one day on the subject. The most recent and pertinent study addressing curriculum on industry influence is King and colleagues' (2013) examination of the effect of attending a medical school with an active policy on restricting gifts from representatives of pharmaceutical and device industries on subsequent prescribing behavior. They looked at 14 medical schools with a gift restriction policy in place by 2004 and compared the prescribing habits of physicians attending these schools before and after the implementation of the policy. They looked at prescribing patterns of three drugs, and found that for two of the drugs, attending a

medical school with an active gift restriction policy was associated with reduced prescribing of the newly marketed drug (King et al. 2013).

Zipkin and Steinman reviewed nine educational interventions revealing that receiving an educational intervention about the pharmaceutical industry was associated with a stronger belief that discussions with pharmaceutical reps and promotional items can impact prescribing, stronger beliefs that pharmaceutical reps may use unethical practices and that other physicians prescribing patterns can be negatively influenced by gifts, beliefs that resort seminars bias physician behavior and that it is unethical to accept funding to attend these seminars, less agreement that drug advertisements provide educational material, less approval of pharma gifts and increase in resident confidence in managing aspects of the interaction with pharma representatives (Zipkin and Steinman 2005: 784). The authors recommend that "a more vigorous set of interventions may be necessary to effectively counter the effects of pharmaceutical marketing. In particular, such interventions should focus on problem areas in knowledge, attitudes, and practices that have been documented in the literature" (Zipkin and Steinman 2005: 784). They conclude that the widespread absence of policies to address industry influence in addition to the high frequency of interactions with industry suggest that more regulation is needed, putting the onus on the Accreditation Council for Graduate Medical Education and the American Association of Medical Colleges. They also recommend an ongoing series of seminars to address educational deficiencies, and interventions that target faculty and chief residents to encourage appropriate role modeling in their interactions with trainees.

Austed and Kesselheim (2011) note that medical education has "embraced the transparency movement by shining the light of disclosure on physician-industry interactions" (1). As an example, the Accreditation Council for Continuing Medical Education recently required disclosure of lecturers' conflicts before lectures qualifying for continuing medical education (CME) credits. But the authors are critical of the fact that disclosure norms have not trickled down to the "very start of medical education – the preclinical years" (Austad and Kesselheim 2011: 1). They argue that in these years students are not just learning about anatomy and physiology, they are "beginning to construct a framework for analysis of data and application of data to clinical reasoning they will use as practicing physicians" (Austad and Kesselheim 2011: 1). For this reason, say the authors, policies require disclosure of financial conflicts of interest before the start of any lecture to remind a medical student audience about the potential for bias in the presentation of scientific information and therefore the need to be critical evaluators of the material being taught.

A series of studies based on educational interventions has attempted to identify the best way to teach medical students about the pharmaceutical industry (Wofford and Ohl 2005, Randall et al. 2005, Brodkey 2005, Schneider et al. 2006). Amy C. Brodkey (2005) refers to the literature about physician prescribing habits over the past ten years to claim that pharmaceutical marketers know that lasting habits and attitudes are formed early in physicians training. She writes:

> Trainees are taught by faculty who may have multiple relationships with industry, including research funding, paid consultancies, representation on speakers' bureaus and advisory boards, equity interest, and other partnerships. They may be aware of these connections and may modify their behaviour so as not to offend a faculty member. It is not far-fetched to presume that these relationships may also reflect what trainees are taught by those faculty members (224).

Brodkey thinks that the curricula should not stop at ethical issues involved in the acceptance of gifts, but should include information about the pharmaceutical industry, the process of drug development, drug pricing, the impact of marketing on prescribing, evaluation of industry generated information, types of nonscientific appeals made by PRs, evidence-based evaluation of the medical literature, utilisation of relatively unbiased info sources and, rational choice of therapies. She argues that educational interventions need to address industry influence more comprehensively, but not that medical education needs to be re-organised in any way.

It is clear from this literature that most medical schools in the U.S. and Canada do not offer particularly comprehensive conflict of interest policies and that educational 'interventions' to teach students about industry influence are sparse. The students in this study corroborate those findings by discussing the fact that they feel under-educated about industry influence. Particularly because they have a problem with industry influence, when they get to the clinic they are overwhelmed by the presence of industry and feel that they do not have the tools to express why this is a problem for them. Many, particularly those who do not have access to organizing campaigns on this topic (like those in the AMSA Pharmfree campaign) find themselves coping with the conflict industry represents for them in complex ways.

The Sociology of Medical Education

My search did not reveal any significant sociological investigation of industry influence in medical education. Possibly the most substantial sociological work on medical student culture is Becker and colleagues' *Boys in White: Student Culture in Medical School* (1961), a sociological investigation of medical training. Becker and colleagues

note that medical profession is overwhelmingly male, and thus "talk mainly of boys becoming medical men" (1961: 3). It is important to acknowledge the serious difference between that era of medicine and the current one, where women now constitute the majority of students in medical schools worldwide and represent an average of 60 per cent of student intake across North America, Europe, Australia and Russia (Bleakley 2013: 60). The women interviewed in this study were not only studying medicine, a radical concept fifty years ago, but are leaders in movements to define and shape medical education. But where *Boys in White* is clearly different in this regard, on other points it is remarkably relevant, mainly in its observations about the shift that takes place for medical students when they go from the 'freshman' years (what I call the 'pre-clinical' years) to the 'clinical' portion of their education. Becker and colleagues note: "as they come into contact with clinical medicine, they developed new goals that were more specific than those they had had before. They learned to want clinical experience and to want the opportunity of exercising medical responsibility but were often frustrated in their attempts to realise these desires by the necessary constraints imposed by the organisation of the hospital" (Becker et al. 1961: 436). Becker and colleagues don't mention the pharmaceutical industry – another important feature of education that has changed considerably. In a contemporary context, the 'organisation of the hospital' includes the presence of the pharmaceutical industry. Thus the constraints that Becker and colleagues identify now involve negotiating the presence of the pharmaceutical industry. Medical students today, like their counterparts in the 1950s, make an effort to shift to the clinic environment – to fit, and yet retain ideals about practicing medicine. In the current context, this effort involves managing the presence of industry.

Another way in which *Boys in White* remains relevant is in the notable hierarchy between student and teacher. While participants of this study demonstrated that in some ways they had the confidence to challenge their superiors' opinions, in other ways the hierarchy of fifty years ago remains intact. But there is an interesting paradox in *Boys in White* that is relevant for my study. Becker and colleagues note: "Students want very much to be doctors. They regard their teachers as men who really know what is best for them...the medical student is perhaps more likely than any other kind of student to do what his faculty wants him to do and be what his faculty wants him to be" (Becker et al. 1961: 438). At the same time, the students in Becker's work exercise considerable autonomy. The authors note "whatever power lies in the hands of organisational superiors, that power is effective only to the degree that subordinates co-operate with their superiors" (439), and the students in their study, like mine, identify collectively and create a social order of their own. The students in my study do not simply do what faculty members want them to do. They perhaps represent an unusual subset of this population in that they sometimes openly resist what faculty want them to do, even if they do so carefully. When they resist, they often do this with other medical students, as a part of a campaign or collective. Those who resist alone do so tentatively. They compromise, negotiate, avoid, suggest and manage – sometimes knowingly putting their future at risk.

As Cockerham (2009) has noted, there has been very little comprehensive research on the medical school experience since the 1970s, when doctors were in a far more vaunted position during the 'golden age of doctoring' (232). Sociology shifted its focus from professionalism and identity transformation to a more macro focus on

organisational dynamics and structural change (Cockerham 2009: 233). Glimmerings of sociological analysis have appeared briefly in contemporary books on this topic. From a perspective I would place firmly within the Sociology *in* Medicine camp, a few have developed theories about how medical students are socialised to accept industry influence. In Kassirer's (2005) *On the Take* he notes that interns and residents develop a 'siege' mentality focused on the stress of their demanding 80 hour weeks: "Within this mind-set they are susceptible to a narrow set of desires: more sleep, more encouragement, a few hours of relaxation, a little kindness, and free, accessible food. Drug company representatives appreciate these vulnerabilities and needs, and step in to help" (11-12). His analysis fits with Howard Brody's *Hooked: Ethics, the Medical Profession, and the Pharmaceutical Industry* (2007), which deals with medical education and industry more extensively.

> To take full advantage of the descent from idealism into cynicism, the pharmaceutical industry must supply physicians with an army of nice, physically attractive people who seem to appreciate them when no one else does, and who shower them with rewards. But this practice has to fly under the ethical radar of the more sensitive and idealistic students, setting off no warning bells. The industry has to carefully pace its gift giving to fit the psychological stages of the physician's progress through education into practice. In the process, industry has carefully attended to the old adage that the descent into Hades is a gradual slope" (193).

For first year students, the gifts should appear noble – a textbook or medical instrument (Brody 2007). Later, the industry can appeal to the students' self-interest but with gifts with low monetary value (pizza and sandwiches at lunch). When the student reaches clinical rotation they follow the lead of the residents in deciding what is acceptable or not (ibid). More expensive means and trinkets are introduced, and the industry is able to "up the ante by imperceptible degrees" (Brody 2007: 193). All the while they are conveying

their appreciation for how hard the student works, how relatively innocent the gifts are, and how much the students should feel entitled to the gifts: "The end result of this slow process of acculturation is a practitioner who eagerly seeks contacts with pharmaceutical sales reps, eagerly accepts their gifts, never feels ethical unease about this state of affairs, and feels fully entitled to whatever is received" (Brody 2007: 193). Brody suggests that all of this constitutes the 'culture of entitlement,' where before physicians even begin their research careers, they are persuaded that they are entitled to gifts from the pharmaceutical industry, and that these gifts pose no threat to their values (192).

My findings do not support the culture of entitlement theory. Firstly, I find that this theory speculates more on the motivations of industry representatives than provides a sensitive understanding of the views of students. Secondly, the students that I interviewed were not cynical and were not duped by pharmaceutical advertising and marketing. In the 'culture of entitlement' depiction, students have little agency. This is not what I found from the participants in my study. To the contrary, they organise locally and nationally to be critical of the influence of industry, but even at an everyday level, they negotiate complex and conflicted feelings about the presence of industry as they attempt to meet the rigorous requirements of medical school. This is possibly because of the bias of my sample in that I chose to speak with students who were critical. But there is something about the depiction rendered above by Brody that seems too simple. Students do not have a voice in his analysis. Perhaps this is a reflection of the extent to which students have developed a voice over this matter since Brody's work. Perhaps some have begun to participate in these debates because they have been

characterised as unwitting victims. There has been some sociological theorising on the problems with the sort of sociological analysis that portrays participants as unaware followers of cultural norms. For instance, Harold Garfinkel's work on how investigators sometimes construct a member of a society as a "cultural dope," or as Michael Lynch (2012) puts it in his revisiting of Garfinkel's work, how the sociologist "makes out the actor as a docile element of a theory of action" (226). My work attempts to understand how students both understand and shape their social context. I attend to the kind of knowledge they gain from their experiences of medical education and emphasise their knowledgeable agency.

The other relevant sociological concept in the study of industry and medical education in addition to the culture of entitlement is the 'hidden curriculum.' Some scholars have pointed out that medical students undergo a process of socialisation to become doctors. In 1994, Hafferty and Franks argued that medical training is moral enculturation, comprised of a formal and hidden curriculum. They describe it this way:

> Only a fraction of medical culture is to be found or can be conveyed within those curriculum-based hours formally allocated to medical students' instruction. Most of what the initiates will internalise in terms of the values, attitudes, beliefs, and related behaviours deemed important within medicine takes place not within the formal curriculum but via a more latent one, a 'hidden curriculum,' with the latter being more concerned with replicating the culture of medicine than with the teaching of knowledge and techniques. In fact, what is 'taught' in this hidden curriculum often can be antithetical to the goals and content of those courses that are formally offered (Hafferty and Franks 1994: 864-65).

Hafferty and Franks discuss this in the context of medical education on ethics, and it is part of their broader sociological approach which sees medical training not as value-neutral, but as acquiring the physician identity and character (1994: 865). In keeping with this idea, Sierles and colleagues say their finding that 93 per cent of students had

been asked or required by a faculty member to attend a sponsored lunch constitutes a 'hidden curriculum' where students were learning a lesson not formally scheduled into classes (2005: 1040).

The hidden curriculum is an appealing framework for understanding industry influence because the commercialism that is often associated with industry particularly by critics is seen as antithetical to the core mission of medicine. While the influence is present in the classroom, it is most often not obvious – for instance, lecturers receive funding from industry that they do not disclose. I argue that while industry influence is often hidden in the pre-clinical years, it is not hidden in the clinical portion of medical education. Some of the participants of this study describe the pre-clinical portion of medical education – in lectures – to be free from industry influence, and some talk about the fact that they are aware of the influence but it is often difficult to detect in an obvious way, suggesting a hidden aspect. But industry influence is decidedly not hidden in the clinic. It is here that the notion that the influence of industry constitutes a 'hidden curriculum' does not seem to apply, because increasingly, the clinic experience is the formal curriculum, sometimes beginning in the first year of medical school. My work attempts to bring that clinic experience fully into view. In many instances, the presence of industry in the clinic was seen as normal and inevitable - students gain first-hand experience of the close relationship between industry and medicine in this context. What seems to be almost completely hidden from the formal curriculum is a discussion about the industry itself – what it is, how it works, how it fits into broader social and political systems, and the kind of impact its influence can have on patient care.

Research Findings on Influence of Industry

Often students do not notice industry influence in the pre-clinical years of medical education. In a story that will follow involving a lecture on pain management sponsored by a drug company the student makes a point of saying he did not realise that industry was sponsoring his lecture until long after the course – he went back to his notes when attempting to make a decision about a treatment plan for one of his patients as a resident and noticed it – then corroborated with other students in the class, who also had not realised that the company had sponsored the lecture. This investigation of the presence of industry in medical education relies upon not only medical students' willingness to report what is taking place, but on their ability to recognise that it exists. Where students had been alerted to the problems with industry influence, they sometimes detected subtle ways in which the industry had a presence in the classroom. They also articulated an awareness that it could be present, but hidden from view. Sometimes this very awareness alerted them to an instance of industry presence that otherwise would have gone undetected. Thus the degree to which industry influence in the classroom was hidden depended on students' inability to pay attention to cues, like a lecturer who says "I used to be a consultant," referenced by a participant below.

Some students were aware of the fact that influence could exist in imperceptible ways. To these students, the presence of industry is not completely hidden; it is just not obvious. A few students were aware of the fact that much of the research they are exposed to could be funded by industry, that industry even 'ghostwrites' some of these studies, that their professors had ties to industry, that they even sat on speaker's bureaus and went to regular lunches and dinners with industry representatives. All of these things were seen as possible influences, but if the school had no operational

policy of disclosure, students could not be sure about the level of influence. It was hidden from plain sight, but they were still aware of it. An active member of AMSA from Connecticut acknowledged that the pharmaceutical industry could be affecting her education, but she didn't know for sure:

> Okay. No. We don't have contact with the pharmaceutical companies at least in the first and second years. Most of our lecturers are either MDs or PhDs and as far as I know they have no connections to the pharmaceutical companies. One or two might say something like 'O I used to be a consultant;' they will disclose that.

An AMSA activist from another institution in Connecticut said:

> We don't usually have [lecturers] disclose their relationship, so their payments or anything like that, so we don't know who's being influenced....So they'll say something like 'you know, your pharmaceutical text book says that this drug, x, is this way, but actually it doesn't really cause much nausea.' Or 'your book says it causes very little nausea but actually it's the worst thing.' So you get the experience which is valuable, but you don't always know where it's coming from. So I don't know how influenced those people are because I don't know what kind of money or value they're getting from industry and uh, they're not really asked to disclose it – like its hidden.

A student from Nova Scotia said:

> So, no... but yes. If that makes sense. Very clearly, it's very clear at our school and through our medical school society, etc. that we're not allowed to have pharmaceutical company advertising. Or support for any of our events. And our dean is very good about enforcing that and making it known and people kind of understand it. However, there have been a couple of occasions where faculty wanted to buy things for students. They wanted a particular rheumatology book, was one example, some particular technologies for answering, for doing quizzes? Where we would do electronic quizzes with the buzzer, kind of thing, for example, but at least two or three times there were books, or electrical devices, that were given to us that individual physicians had gone out and convinced a pharmaceutical company to fund and give to us. So it still seeps its way in.

A student from Ontario made a similar observation to the one above, noting that the administration had created policy limiting pharmaceutical industry influence in her education, but she knew that her professors were engaged in research that was funded by the industry, and they did not always disclose this openly: "So I think that while our

administration doesn't allow us to, say, accept funding directly from the pharmaceutical industry, um, as a student groups or the school itself I think there are ways that the pharmaceutical industry does directly affect our education."

A student from a university in Alberta specifically referred to the influence of industry as "benignness":

> Um, I think it's disturbing. I think the benignness of it. Uh, like how benign it seems to, for student to fund, er, ask for, ah, money for their initiatives. From pharmaceutical companies. It seems very benign? And that's kind of the hideousness of it, that we almost think we're smarter than the ability to...than, too smart to be influenced. And that, that really is, I think every study I've ever read says that's not true. So the disturbing trend is how benign it seems and therefore how easily like, people reach out. And what's worse is that it's students. Students just, they don't know any better. And I think that's dangerous for someone to start at the beginning of their career with, with biased prescribing practices.

Importantly while benignness connotes lack of harm, this student's argument is that it is the benignness of industry that makes it 'hideous.' The fact that it appears to be helpful is what makes it particularly harmful. A student from New Mexico summed it up this way:

> I think it's been such a long-standing and well-developed relationship that it's not completely understood just how much and to what extent the influence is there. I think it's very pervasive and from kind of overt issues where um a professor is, as happened at my institution a few months ago speaking to medical students about a disease but also touting a drug that he happens to be being paid a lot of money on the side to promote and represent to the kind of larger ways that drug companies are often sponsoring scholarships, entire centres, entire departments, I think it's a very large influence.

This student, as well as the others mentioned above, is aware that industry has a presence, but even though the student has acquired this awareness, s/he cannot be sure about the extent to which it influences their education.

The "hidden" aspect of industry influence makes the problem difficult to study. The potential influence of industry can be present in many forms, not just in the

promotion of a drug, but in the creation of an attitude towards prescribing. Some students talked about a "culture," in which industry influence was normal and pervasive, rarely subject to scrutiny. Other students describe the presence of industry as normal – a student from Quebec said she has not had a lot of contact with industry as a first year medical student, just presentations from pharmaceutical companies, their presence at 'lab lunches' and conferences, and some gifts, like school bags and coffee mugs, 'lots of solicitation' during orientation. "I guess we tend to think of it as inoffensive," she said.

An Ontario student said the industry shapes a great deal of medical education at the outset, through its influence on which drugs are brought to market, its funding of continuing medical education, its support of particular research. "That context is probably more influential than the actual direct impact on a medical student or preceptor," he said. Another Ontario student said that the corporatisation of the university has restructured the ways in which students interact with corporations. "I can't actually think of a way that I haven't seen it to be honest...just the ways that we have to do research is completely stifled and completely controlled by private funders." She also said:

> In undergraduate medical training we don't see Pharma reps. they don't come in, and there's this idea that we are somehow protected from it? But I don't think we really are because of the ways in which is integrated into our curriculum I think are very – are so extensive that how do you even – it becomes almost the norm?"

This student used the example of how her medical education lacked any critical discussion of SSRIs. Another student from Ontario said the companies provide funding to bring scientific discoveries to market and organise conferences that drive certain

areas of research – the ones that are deemed to be most profitable. The industry also influences his preceptors and mentors, what is available in their sample cupboard,

> But what's sort of more insidious and hard to put your finger on is pharmaceutical companies, the industry, is based on a market model of the world, of what is, they're really driven like all corporations and all industries for profit. And they look at patients not as patients but as consumers of their product and their interest is in market share.

He argued that this ideology permeates medicine; the industry will explain that samples are about access, that marketing is about the accessibility of drugs, that when they hire physicians to act as spokespeople it is meant to educate the public. The student was concerned about the fact that "medical students become physicians who embrace that ideology of, what matters is what's profitable...that it's okay to, to think about that bottom line."

These students who described a 'culture' of the market model of medicine were mostly from Students for Medicare, an organisation that has an agenda to promote public health care in Canada. But there were AMSA activists who noted this culture too. A student from California said of industry influence, "Oh, it's huge. It's huge. Um, so, and it's on so many levels." He elaborated that these levels include which drugs to prescribe, payment for studies in the journals and not publishing studies that are inconclusive, the fact that doctors prescribe based on 'lore,' and that lore is highly influenced by the drug companies. Interestingly, these students who talked about the market model of medicine had been engaged in movements outside of medicine, in labour or other social justice groups. Their criticism of industry influence went beyond conflict of interest to put the foundational assumptions of biomedicine in question.

While the culture of a market model of medicine was not discussed by all students, most talked about the fact that industry was present in their education. In the preclinical years it was more hidden, but not absent. In the clinic, it was quite pervasive.

The Preclinical Years

Interview participants from both the United States and Canada suggest that the presence of industry is practically nonexistent at the beginning of medical training, but as soon as the clinic training begins during residency and clerkship, around third year,[21] industry was obviously present in giving samples to doctors, providing free lunches, and doling out pens, notepads, reference materials and charts with their insignia. When participants were initially asked if they had seen any presence of the industry in their education, this was a common characterisation. In this way, industry influence does constitute a 'hidden' curriculum, in that it is not readily apparent. When participants described the absence of industry at the beginning of medical school they talked about the absence of gifts. It appears that participants were attentive to this element of pharmaceutical marketing because most of them have been exposed to either a campaign or literature that has been critical of gifts to physicians and the resulting possible conflict of interest. They noticed the industry insignias on pens, notepads and brochures. They noticed when the lunchtime meetings were brought to them by a company, with coffee and treats. Most did not see these things in the classroom when

[21] The typical medical school curriculum in North America comprises one to two years of preclinical study consisting of classroom and laboratory instruction in core subjects, followed by a clinical component of two to three years in which students observe and take part in care of patients under the supervision of resident and attending physicians. Rotations , or clerkships are required in some fields. This supervised aspect of medical education is often referred to as a 'preceptorship,' which is a mentoring experience with a practicing physician who gives personal instruction, training and supervision to a medical student.

they were learning about biology. Some believed that this meant there was no industry presence in their pre-clinical education.

It is important to make a distinction between covert, what the literature has termed 'hidden' and overt influence of industry in medical education. In the pre-clinical years, influence is far more covert. It ceases to be covert, or 'hidden' when a student draws attention to its presence, when it was 'exposed,' as the following cases will demonstrate. In the clinical years, industry presence is overt, and thus not at all hidden. The importance of this distinction arises from claims that a campus is free of industry influence when it creates a policy banning gifts from industry to students, as the AMSA campaign would call it, "Pharmfree." I would suggest that no campus is truly free of industry influence, but that the influence is covert. A student from Ontario said:

> I think in Canada we've done an excellent job of excluding pharmaceuticals from medical education. There's very strict policy – I know at [medical school] – we're not allowed to accept any kind of funding promotional materials, nothing whatsoever, from pharmaceutical companies for any activities in school whatsoever.

But she also acknowledged that part of their training is to work with physicians who do not abide by those rules.

> I've gone to a physician's office and been given pens and for example I have an oral contraceptive wheel that's sponsored by pharmaceuticals – I have highlighters. I have materials – it wasn't accumulated within school, but it was accumulated in clinical settings that are a part of my education. So I think we've done really well in terms of the actual school setting, but in terms of the clinical it's almost impossible not to encounter it.

Another student from this University echoed this mention of the school's strict policy, saying "by faculty rules that's impossible. No pharmaceutical company would have access to medical students within university walls." She also said she had to turn down two lunches sponsored by pharmaceutical companies, offered by her preceptor.

Many Canadian students who had a policy at their institution had assumed this meant that their exposure to industry during the pre-clinical years was very limited. At the same time none of them could give me any details about that policy. In a study by Shnier and colleagues[22] (Accepted for Publication PloS One 2013), the University that both of these students mentioned received a 'moderate' score on eight of the categories investigated with an overall score under 70 per cent. Thus from the students' perspective the policy appears to be more restrictive as a whole than Schneir and colleague's analysis suggests.

A student from a school in Alberta said he didn't see the influence of industry in his first two years of medical school.

> Our faculty has, they they they they banned Pharmaceutical funding for our things, so we don't go there. Even if we want to. The - where I've noticed it is in our clinical training. We have two years at [the University] and in most schools there two years of ... preclinical? So it's mainly lecture-based, that kind of thing, and then do you clerkship, which is clinical. And in the clinical, that's when you see Pharma reps, and you see sponsored lunches, and you see prescribing habits, so you learn from your role models. And some of the role models you learn from, heck I've attended pharma sponsored lunches with my preceptor. And I'm invited, I'm encouraged in fact. So is it explicitly in our funding, er, in our education?

This University's policy, as evaluated by Shnier and colleagues, has 'no policy, or permissive policy' in the categories of compensation, consulting, curriculum, ghostwriting, gifts, honoraria, on-site education, sales representatives, samples,

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[22] Shnier and colleagues (2013) graded COI policies at Canadian medical schools using a grading system modified from AMSA, Chimonas and colleagues (2011) and Mason and Tattersall (2011) for 12 categories, including gifts consulting relationships, industry-funded speaking relationships and speakers' bureaus, honoraria, ghostwriting, disclosure, industry sales reps, on-site educational activities, compensation for travel or attendance at off-site lectures and meetings, industry support for scholarships and funds for trainees, medical school curriculum and samples. They graded each category on a scale of 0-2, where 0=no policy or permissive policy, 1=moderate and 2= indicates restrictive. They also scored enforcement measures.

scholarships, speaking, with an overall score under 40 per cent, indicating that this student's perception of the restrictiveness of the policy is not entirely accurate.

In Quebec, some students said their school had a policy that was very restrictive of gifts. A student from a Quebec University said students cannot have any contact with industry during the school year – industry cannot pay for any event. Her perception was that this policy had been in place for some time. She was glad that at this institution her teachers addressed industry influence during class – they talked to students about how they would be solicited by pharmaceutical companies, and what they should do it about it – stay objective, be a good doctor, do not be overwhelmed or convinced. But in Shnier and colleagues' study, this school scored "no policy, or permissive" for ghostwriting, sales representatives, samples, speaking, and 'moderate' for consulting, disclosure, gifts, honoraria, on-site education. Thus it would seem that in some cases the students' experience does not match the formal policies of the institution. It is very possible that in practice some areas of medical education, are free from industry influence regardless of the institution's policy on the matter. It seemed that particularly in Canada, faculty helped to create a culture where industry logos and gifts were not welcome in the classroom. This was not always the case, as will be described in some of the anecdotes below.

In the U.S., some students were present for a campaign that actually eliminated gifts from the classroom experience of medical education and afterwards concluded that they had successfully rid the pre-clinical years of industry influence. Some students talked about being part of a movement to address the influence of industry that was far more present prior to 2007, when AMSA released the first Pharm-free Scorecard, rating

medical schools on their conflict of interest policies. One student described the influence of the scorecard as a "sea-change," after which industry presence in medical education had curtailed significantly. However, students in the U.S. were less likely to state that their campus had a complete ban. While they were also not sure about the details of the policy on their respective campuses, they were aware of the limitations of that policy – sometimes because they had been directly involved in reading it and working to change it, as the foundation of their local Pharmfree campaign.

While there are some institutions that have very strong policies limiting the influence of industry in medical education I argue that there is no such thing as a Pharmfree campus in the U.S. or Canada. This is because the presence of industry is pervasive and covert, quietly and systematically shaping what is deemed the most neutral and value-free facts of medicine. Participants in this study talk about some of the ways that it 'seeps in' to medical education. I begin by presenting some cases of covert industry influence in medical education and describe student reactions. Cases of covert industry influence are far less frequent than overt industry presence in the clinic. But these covert cases demonstrate that industry influence in the classroom can go unnoticed.

Exposing Pre-Clinical Influence

When industry was present in the pre-clinical portion of medical education, participants said it was not immediately obvious. Those who spoke about its presence also spoke about how it came to light, and how the process of bringing it to the attention of others was in itself an act of resistance. Thus the cases presented here demonstrate the relationship between students' efforts to expose the contradictions of industry influence

in medical education, and the events that follow from those efforts, which themselves have an impact on students' consciousness.

The most famous case of industry influence in medical education came to a head in 2008 when Harvard University received an 'F' grade on AMSA's Pharm-free scorecard – they had no conflict of interest policies. But the movement at Harvard began long before that moment. In 2002, two students got upset because their lecturer, a full professor at Harvard, promoted cholesterol drugs to the point where he joked that statins should be put in the water. He was later discovered to be a paid consultant to ten drug companies, including manufacturers of cholesterol drugs. Students talked to their administration and were asked if any other students thought it was a problem. Eventually the administration started to change their tune, but it took years of negotiations, lobbying and political organising. A student involved with this struggle said that someone would take it up, then get drawn into their studies or graduate. Eventually the administration created a policy instituting mandatory disclosure of conflict of interest in the first two years of medical school. A new batch of students entered the Harvard scene in 2008 and pushed for the policy to be more comprehensive, but met with further resistance from the administration. These students, some of whom had a background in community organizing, took a more 'activist' approach than their predecessors, according to a study participant who was involved in 2008. They presented signatures to the Dean and organised a rally dressed in their white coats with pharmaceutical logo stickers on them, then ripped them off and tossed them in the air for the media. With no response from the administration, the students started to feel a bit dejected. They kept trying to meet with the administration and were rebuffed. It was only when a *New York*

Times reporter came to the campus in search of the story that the Dean announced the administration was going to be revising the Conflict of Interest policies. The student representatives that they chose for this project were not part of the movement described. The student who spoke of this organizing effort noted that she and others were accused of embarrassing Harvard with their rally and petition, but she explained that those tactics were a last resort.

Harvard Medical School was the site of a number of pharmaceutical industry scandals at this time, as their ties to industry came to light. This included some criminal convictions, billions of dollars in fines, proof of bias in research and publishing and false marketing claims (Wilson 2009). Students helped to institute a requirement that all professors and lecturers disclose their industry ties in class (ibid.). Following this, in 2009, a new Dean struck a 19-member committee to re-examine the school's conflict-of-interest policies, and subsequently a policy was introduced placing restrictions on Harvard Medical School Faculty and pharmaceutical and medical device makers, requiring that faculty cannot give talks as paid members of company speakers bureaus, earn more than $10,000 annually from a company on whose products they conduct clinical trials, or accept personal gifts, travel, or meals from companies (Boston Globe July 2010). Importantly, this policy does allow faculty to conduct industry-funded research, work as paid consultants for industry, found biotechnological companies, hold stock in health care companies and be a paid member of company scientific advisory boards (Boston Globe July 2010). The movement at Harvard helped to inspire a number of U.S. schools to develop conflict of interest policy. It put the AMSA Pharmfree campaign in the spotlight, and made the scorecard relevant. No Dean wanted their

medical school to be the next Harvard when it came to conflict of interest involving industry.

As noted above, Students from the U.S. did not see a lot of pharmaceutical industry influence in their pre-clinical education. This could be because these students represented schools that were fairly active with the Pharmfree campaign. This does not mean that those schools are free from industry influence in the early years, as one participant from a school in Oregon put it:

> So you were saying that it seemed like people weren't influenced by the pharmaceutical industry in first and second year courses. But I would say the influence is a little more invisible. It would be a pharmaceutical company representative coming into class and saying 'I'm here to tell you about my drug,' or whatever, it would be ah, consulting relationships, which are not disclosed, a type of compensation by a company that is not proportionate to the work done which leads to an inability to speak poorly of the company or its product – that's kind of thing. And what the Pharmfree campaign is designed to do is take those invisible things and make them visible.

This student talked about his pharmacology professor who has a financial relationship with a diagnostic company. The president of the company was invited for a guest lecture, and as the student put it: "it just felt like a big advertisement."

A student from a school in Ohio said he thought medical students face industry influence more in third and fourth year, in the clinic, but he had experienced a lot of educational symposium-type events outside class-time – hosted by the school – where industry had an obvious presence.

> And a lot of them, I'll show up to one of those, like a research symposium, and all of a sudden it will look like that vendor thing out here,[refers to vendors at AMSA conference] but it will all be pharm companies. And then it will be 'do I want to sit through this?,' or 'can I sit through this without interacting with them?' One thing I've noticed is that like the worst off hospitals financially tend to have the most.

On a whole, participants from the U.S. emphasised clinic experiences when they spoke of industry influence in their education.

In Canada, the most striking cases of pharmaceutical industry influence were far less public than, for instance, the Harvard case. A student from the University of Toronto described a lecture that was given by a member of the speaker's bureau for a pharmaceutical company, who was not a faculty member at the University. According to the student, the lecture, which was on pain management, contained serious inaccuracies that favoured the sponsoring drug companies' products. He said the effectiveness of the drugs was overstated, a quote from a *Canadian Medical Association Journal* paper was fabricated, and the dangers of the drug were downplayed. Conflict of interest was not disclosed. Students received a reference book on the subject that was paid for by the sponsoring company – Purdue Pharma – the maker of the prescription pain killer OxyContin. The lecturer, Dr. Roman Jovey, a member of Purdue Pharma's speakers bureau, left the book, entitled *Managing Pain: The Canadian Health Care Professionals Reference* for the students attending the lecture. When the story was later reported in Canada's media, Jovan was quoted saying: "It was a gift from Purdue. I'm not at all embarrassed or ashamed. I think it's a darn good book" (Ubelacker 2010). He co-wrote the book. It wasn't mandatory reading, but every student got one, and the content was relevant for the class.

The student contacted the organisers of the lecture series and got a brief response explaining that they would continue to distribute the text to students – they didn't take him up on his offer to meet with them to discuss the matter further. He was not satisfied with this, so he wrote to them again, and thus began a campaign that took

him several years of emails, meetings, investigations and appeals at every level of the medical school. The lectures were discontinued in 2007, years after this student began his campaign. But it didn't end there.

This story was covered in one of Canada's national magazines when the University of Toronto revamped its pain management curriculum. Spurred by the complaint by this student and his Faculty supporters, Dr. Rick Glazier and Dr. Philip Berger, the University conducted an informal inquiry into the concerns raised about their Interfaculty Pain Curriculum (IPC).

The report from the informal inquiry by Associate Vice Provost of Health Sciences Policy and Strategy at the University of Toronto stresses that there was no evidence of conflict of interest, but the perceived conflict warranted action, which included revising the curriculum to include topics such as opioid addiction, improper opioid prescribing, at-risk communities, illicit sales and drug diversion, 'double-doctoring' and recreational sharing and use of opioids (Ferris 2010). The report suggests that a future Task Force that would work on recommendations about what should be included in rules for conflict of interest, and should consider whether faculty receiving speaker's fees or being on advisory committees for industry should be prohibited from teaching in the pain curriculum (Ferris: 2010: 15). Ferris suggests working with a Task Force struck by the Dean of Medicine in 2007, the Task Force on Relations with Industry and the Private Sector (TRIPS). TRIPS published a 17-page report in 2011, which, among other things, recommended that the Dean of the Faculty of Medicine appoint a Committee on Conflicts of Interest (CCOI) (TRIPS 2011).

The University of Toronto's pain course was funded by donations called 'unrestricted educational grants' from 2002 to 2006 by drug companies including Purdue Pharma, Merck-Frosst, Pharmacia Canada and Pfizer. The university centre that organised the lectures received funding for educational and research activities from several sources, including pharmaceutical companies that sell opioid analgesics. By 2007 the amount of this funding exceeded $500 000.[23] After 2007 the program was funded from faculty budgets.

The student in this case had some mentorship from faculty who were very supportive, but also found that the majority of faculty members he spoke to, even amongst those who were sympathetic to the issue, weren't going to speak out about it. They made a point of advising him not to raise these concerns, for the benefit of his career. This gave him pause: "Definitely when someone you respect says, 'ya this is an important issue but you should not raise it because it might have implications for your career,' ya definitely that made me ah, contemplate, ah, either dropping the whole thing or not being so adamant about requesting change." But he decided to persevere anyway:

> Well there are probably weeks where I just let this go and didn't do much on it, um, and that is very easy to do right because I mean, you're busy as a trainee. So you're not going to be looking for more work. And this is a lot of work. It takes many many hours to raise these concerns writing e-mails attending meetings and so on. But, it's just, the facts are so clear in this case and I thought that this case had very important implications for patient safety. And I also think that the fact that this case is particularly egregious and particularly clear and that there is a very clear association between inaccuracies and industry involvement that could it has the potential to change the way things are done, to change people's opinion about industry involvement in medical education.

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[23] http://www.utoronto.ca/pain/uploads/files/UTCSP%20External%20Review%20Report %202008.pdf (accessed 18 Mar 2013).

This student did not have any connections to a wider movement or organisation. He operated mostly alone, out of a desire to change one particular aspect of the curriculum.

Another student from Ontario talked about a similar lecture during "pain week" at his medical school. He received the text book written by Jovey, along with about a dozen other pharmaceutical sponsored educational resources during his pre-clinical education.

In another Canadian case from 2002, medical students in Manitoba received a book that was published by a drug company for a class on gastroenterology. The student who relayed this story said that as a first year medical student in this class, he didn't have time to look through the entire book and scientifically evaluate the potential bias that the company's publisher status could have rendered on the data offered as educational material, but that's part of the problem. Most medical students are overwhelmed with the work involved in just meeting the requirements of medical school. Despite the obvious challenges, he and a peer started talking about the book, and she admitted that it made her uneasy as well. They decided to put together a petition that essentially opposed such influence in their medical education. They sent it out to a list-serve of over 350 medical students. The 20 supportive signatures they got were overshadowed by the more voluminous hate-mail that flooded their inboxes. They were told they were imposing their morality on everyone, called stupid, compared to the Taliban. The student decided to get to the bottom of this angry barrage, and started approaching friends, asking why they didn't sign. Most were just not sure about the issue, they didn't know the other side, etc. Some were openly hostile, defending their right to free lunches. In the meantime, he was busily replying individually to every

naysayer on the list-serve, painstakingly explaining his position. When he found he was repeating himself, he wrote a long, point-by-point, "evidence-based", referenced response and sent it out to the list-serve. A few individuals said they were impressed, but no one else signed on. So he kept going. By this time, the issue had gained some attention. A team of six students and faculty members from "both sides," including a Dean, came together to organise a four-hour debate, answering "Does the pharmaceutical industry have too much input in the education of doctors?" Getting speakers from the "anti-pharma" side was easy. Dr. Gordon Guyatt from McMaster University, a founder of evidence-based medicine, Dr. Bob Goodman, founder of www.nofreelunch.org, and Dr. Joel Lexchin, a Toronto-based critic of the relationship between doctors and industry agreed to the debate. Finding "pro-pharma" people was a battle, but after much wrangling and negotiating, Murray Elston, CEO of R&D, the lobby group representing the brand-name drug industry, Winnipeg Free Press's Dr. Frederick Ross and Dr. George Zhanal, a professor of medical microbiology at the University of Manitoba argued to defend "No." Over 300 medical students and community members attended the event (Square 2003).

Other incidents of industry influence taking place in the classroom included an Ontario students 'case-based learning tutor' who was on the payroll of AstraZenica, who told the students that he worked for the pharmaceutical industry but that he was not going to tell them which company until after the approximately fifteen hours of tutoring had been completed, so that his information would not be discredited. Students from three different Canadian schools mentioned that the pharmaceutical industry was overtly present during their 'cardiology block.' At a school in Halifax, everyone in the

class was invited to go to the hospital to be tested for cardiology risk factors, after which students received a lunch that was sponsored by a drug company that made one of the most frequently prescribed drugs for deficits in the metrics that were measured. Some students left the lecture, later finding out that all of the materials used to test the metrics were also sponsored by the company. One of the students who reflected on this said it was most unfortunate that students were not told that the whole initiative had been funded by the company. A few of the students in the class met with the Dean of the school and to her knowledge, it did not happen again. A student at a University in British Columbia said he received a book from Astra Zeneca in his second year of medical school during the "GI Block." The lecturer said that no student would be forced to take the book, but that it would be useful to study for the block.

There is an important difference between the stories I have conveyed from the U.S. and Canada. The students at Harvard had the backing of a national organisation representing their interests with a mandate to support the type of work these students were initiating. They were working as a part of a movement with hundreds of other medical students. In Canada, students who were critical of industry presence were operating almost completely alone. These students acknowledged supportive faculty, but sometimes that support came as a warning that this might not be the best career move for a medical student – faculty members themselves weren't always confident about such 'whistleblowing' activities, particularly given the high-profile Canadian cases of Nancy Olivieri and David Healy, Faculty and prospective Faculty of the University of Toronto respectively, who met with serious repercussions when they presented clinical information that was critical of drugs manufactured by companies that sponsored the

University. With the deeply hierarchical culture of medical school, where students rely on preceptors for evaluation and reference, these students took on considerable personal risk.

Industry Presence in the Clinic

As noted repeatedly, while these cases of industry presence in the early years of pre-clinical training for medical students are striking, what was far more regular and pervasive was the presence of industry in the clinic – a key component of medical education. Students started seeing industry representatives and paraphernalia in abundance when they got into the clinic. Sometimes this was in their third or fourth year of study, but for some students clinic experience began as early as first year.

In a US case for example, industry influence in the clinic took the form of gifts to physicians and friendly ongoing relationships between physicians and industry representatives. A student in Albany saw drug reps handing out samples at her clinical preceptorship. She started to notice that all of the physicians and staff at the clinic write with pens from the companies that visit, and she is frequently invited to come to a lunch hosted by an industry representative. In Washington, a student in his first year of a preceptorship in family medicine saw drug reps in the office every Wednesday morning. They would buy coffee and donuts and the doctors would stand around learning about the latest drug. Another student took a summer job at a cardiology centre in Las Vegas during her undergraduate degree and noticed that 'Bagel Monday' was hosted by a company every week. Every pen, pad of paper and bottle of hand sanitiser in the office bore the logo of a drug company.

Grand rounds were often the site of free lunches provided by industry. A student in New Mexico noticed that in third and fourth year ground rounds were often sponsored by drug companies, where drug company representatives give talks. A student in New Mexico said he was "inundated" at a couple of his rotations with lunches every day by a different drug company. "They were nice attractive folks that came to bring the free food. They had fancy looking colourful graphs to kind of show us and convince us why to prescribe their drug," he said. He found that reps were particularly friendly to students. At one lecture, given by a doctor that has acted as a mentor to him, he realised that the doctor was using slides directly obtained from a pharmaceutical company representative.

In Canada, industry influence in the clinic also took the form of gifts and 'friendships.' A student from Ontario was approached by her preceptor who said the pharmaceutical representative was there for a lunch and she should come – but she said that she turned him down, twice. Drug representatives visited the pediatrician's office regularly during lunch, and the doctors were on a first-name basis with the reps. Along similar lines, a student in Alberta was shadowing a physician in the clinic when a drug rep came in to offer him lunch. A student from Manitoba was doing his clinical rotation when his preceptor asked him to "come over and meet my friend." The student was then introduced to a drug rep who visited the office frequently.

Another way that industry was present in the clinic was through 'educational' materials provided by industry representatives. A student in Ontario said that during her clinical rotation she attempted to figure out how primary care physicians prescribe oral contraceptives. Her classes did not address how to decide which contraceptive was the

best for her patient, so she wanted to do her own research. She approached a few physicians and asked them how they prescribed, to find that they were all influenced by connections with the pharmaceutical representatives from whom they receive samples – for example some referred to a contraceptive 'wheel' which outlined all of the possible contraceptives, that had been produced by a specific pharmaceutical company. "So I feel like there is a necessity to understand what products are available, and we're not really given that, but at the same time in a clinical setting often it is the result of the relationships that physicians have with pharmaceutical representatives," she said.

Finally, students talked about the presence of samples in the clinic. A participant from Ontario was a sexual health counselor in a community health centre that was visited by pharmaceutical reps each day, and received food sponsored by industry twice per week. It was her job to "suck up" to the pharmaceutical representative from Yasmin, so that they could offer samples to patients that couldn't afford it. In her second year the rep told her that the clinic wasn't prescribing enough, so she reportedly stopped bringing samples. Another student from Ontario was working in a community health centre. Because some patients could not afford to pay for medications, they provided samples. A drug rep came to the office to fill up the sample cupboard and mentioned to the student in passing that it was proven that patients prefer brand name drugs, "so just prescribe Yaz."

Examples like this, where students encountered either representatives of drug companies or food and gifts directly from companies, were discussed by almost every participant that spoke about clinic experience. This resonates with Oldani's work on gifts, in that he argues that "the gifting of the pharmaceutical industry is established as

part of normal, routine medical life – common sense" (2004: 333). In the clinic, the presence of industry was not hidden, nor were doctors subtle about encouraging students to participate in this culture in which industry is an overt and accepted part of the everyday practice of medicine. While many students contemplated noting their objection to this influence to their preceptor, they often found complex ways to manage their objection, because of the risks involved, and because it was so integrated into the clinic experience. The presence of industry in the clinic is no accident. The pharmaceutical industry is aware of the fact that medical habits are developed early in a physician's career, at teaching centres, so teaching hospitals have become a critical target for pharmaceutical reps to gift and detail their drugs (Oldani 2004: 333).

Managing the conflict

When they did encounter the pharmaceutical industry these students expressed the inability to meaningfully address the conflict this represented for them. The reasons for this are many. First, there is a very entrenched power relationship between physician and resident which does not allow medical students to honestly and openly discuss this issue. They are subordinate to the physician, and often very beholden to the physician for evaluation and reference. Their objection to that physician's practice could have an impact on their career. Second, many had no training on the relationship of industry to the medical profession. They couldn't put their unease into context, or articulate an opposition to a superior and far more experienced physician. Importantly, the excerpts below are mostly from Canada. This does not mean that students in the U.S. did not acknowledge the hierarchical relationship between student and preceptor. It is possible that students in the U.S. were less likely to describe how they negotiated this

relationship in relation to their objection to industry influence because they had another avenue to voice their objection. They met with other students, participated in AMSA, and had formal meetings with Deans and faculty members under the banner of AMSA. They rarely talked about confronting a physician about their objection on their own. Again, it is possible that they did this – they simply did not stress that experience in the interview. Another reason for this could be that for students in Canada, the first time they encountered the issue of pharmaceutical industry influence in medicine was in the clinic, when they saw pharmaceutical industry representatives and gifts. Students active in the Pharmfree campaign had sometimes been exposed to the subject prior to actually seeing any evidence of it. Or yet another possibility is that students in Canada had been exposed to a critical perspective on pharmaceutical industry influence early in their education, through professors who had spoken out about this matter or exposure to the institutions conflict of interest policy. This exposure to a criticism could have led them to believe that industry was not a significant influence in medical education, reinforced by the lack of presence in the pre-clinical years. They could have then been surprised about the level of influence once they entered the clinic.

What characterised the Canadian students' accounts of encountering industry influence in the clinic was a lack of confidence about openly registering their discomfort. A student from Ontario said:

> I think at this point in my training I have been invited to dinners by physicians and you really feel like you can't say no, because you're working closely with them, and I can say to them 'you shouldn't be going to this dinner.' So I mean, fortunately I couldn't go at that time, so I avoided the conflict, but it's one of those things where people don't really step on toes so if you're invited to go with the person you're working with then you kinda feel like you have to go. I don't know. [laughs] It's so bad! Ahh! [Kelly: Haha, I'm not judging you!]. Ya I think a lot of other students don't think about it as much as I do, because I've been fairly

> invested in it, would probably just go and not think about it, like, 'I'm going to dinner with this doctor and I'm sure it's sponsored by Pharma but this drug sounds really good, so what's the big deal.'

This comment reveals that students created strategies to avoid conflict without threatening the sometimes tenuous relationship they had with their preceptors. Another student from Ontario said:

> It was probably during my first two months of medical school and it was the first time I had been in a clinic with a physician. He was letting me take blood pressure and do some tests on the knee. At the time he had an interest in cardiology. So one day he mentioned, 'oh,' and specifically he mentioned there was a talk but I should really come because it was by a speaker who might be able to answer a question I had about cardiology. I am not an instinctive liar. I wanted to say I had other engagements but I knew that I didn't and I didn't want to say I think I shouldn't be going because its pharma sponsored because that's obviously questioning his judgment, and I mean he's okay with it if he's inviting me – and he's my superior and he's evaluating me and, yeah and just I thought it would be collegial to go along with this.

A student from Manitoba reflected on what it would mean to object to her superiors' relationship with industry representatives:

> Like to me this would be tantamount to going to someone's house and insulting their food. I don't feel like I'm on neutral ground? And because of that I felt uncomfortable. And also at the end of the day I also have an evaluation that needs to be filled out by one of the physicians at the clinic and if they think I'm a difficult person to get along with because of my views that would certainly colour the evaluation at the end of the day. So in terms, you know, I suppose another thing I could add to that is that you know, I also tend to think in terms of, 'what's my likelihood to change someone's stance by having an argument with them?' If people are so cemented I really doubt that because I'm going to come in and have a few minute conversation with a physician that they're going to stop having these lunches altogether. So taking that into account I ended up not being as vocal as I otherwise would be.

Participants told stories about the seamless way in which industry reps participated as a regular player in the clinic. A student from British Columbia said he hoped refusal to

participate in industry sponsored lunches and events would not be held against students like him, but he wasn't sure:

> I would like to tell you that hopefully it's not held against them. But there is such a power differential....I don't think people fully appreciate how much power the preceptor has. The student would be very courageous to say 'no I can't.' Most students who didn't want to go would use some other excuse: 'oh, I can't that day, I take an art class' or something...these are the same people who are handling their evaluations, right?

These comments suggest that students are very aware of not only the power dynamic between student and physician, but also of how much that student's future depends upon the physician's evaluation. By the time they entered the clinic, they had picked up on the fact that they should not speak out openly about their reservations about industry influence, and often this led to participation in industry-sponsored events.

A student from Ontario attended some pharmaceutical company sponsored dinners at fancy restaurants with the family physician she worked with and felt very uncomfortable. In her evaluation of her clinic experience at the end of her rotation she noted that it made her feel uncomfortable, and that students should have the option of not attending events such as this. She did so anonymously because she was afraid of the implication that she didn't respect her supervision. She really liked the physician and didn't want to sour the relationship. Afterwards she talked about it in a class called "portfolio," which it seems was meant to help students with their professional development. Her teacher told her it was important to talk about the fact that she was uncomfortable, and she should do it more formally once she is "matched,"[24] but it was understandable that she didn't want to deal with it openly given the hierarchy.

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[24] 'Matching is a formal process of pairing medical students with a program for postgraduate medical training. The Canadian Resident Matching Service has been around since 1970 and now provides an electronic matching service for postgraduate medical education training in Canada. In the U.S., students compete for access to a

Some accepted the conflict and were resigned to the culture. A student from Ontario said:

> If I sit at a lunch with someone and they spend an hour talking to me just about this one new pill – I'm going to feel like I know so much more about this pill than the pill I'm just going to read up on. So I think whether I like it or not that's probably going to influence my thinking next time I'm in the clinic and I want to prescribe a pill for x. So I just think it's – I have this thought process so I'm hoping because I have this thought process once I'm in the clinic, I won't let it influence me. But I'm just thinking down the road how could it not influence me? And so I just don't really want to be involved in that situation.

This quote above speaks to the fact that some students did not feel as though they had a choice. The industry presence in the clinic had been normalised to an extent where it seemed unchangeable. This normalisation is connected to the concept of 'benignness.' This term, benign, used in a medical context, possibly signifies that the phenomenon is or appears to be non-malignant or not harmful, but that its presence is noteworthy, and even suspicious. It is normal, but should be watched for the possibility of harm. There were some students in the U.S. who noted the unease of the clinic in very similar terms. The word was used in the context of the clinic from an AMSA activist at a school in New Mexico to describe how he saw the influence of industry in the clinic:

> And so this doctor who has his own private practice and it's actually just him – it's just a solo practice, and so he's very busy. But one day you know there was a drug rep, there was actually two drug reps, one was in training and the other was, you know, training here, so they sort of showed up and asked to see a doctor I was working with and he you know was like 'oh okay' so he stood in the kind of secretariat area....And kind of in between patients they gave him this spiel about a drug and I don't even remember what it was now because I was so kind of like I was just so uncomfortable with the whole situation and I couldn't quite put my finger on why it was so weird and why it was so uncomfortable but you know afterwards like I didn't really talk to my mentor about it – he didn't really mention it, it was just kind of this thing that happened – they like shook hands, and they like you know had some small talk and that was it and it was probably

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graduate medical training program (residency) by ranking their top picks and submitting them to a computer in Washington, D.C. Residency programs rank candidates, and on "Match Day," which since 1952 has been the third Thursday of March, students find out if and where they have been "matched."

> not more than five minutes but it was just one of those things that like – and that actually started my interest in this issue and that started me working on other projects, and working with AMSA and things like that. **So it was very benign in a lot of ways – like there was no [laughs] gift giving, there was no, you know, exchange of money or anything like that it was just sort of this detailing um of drug rep in a private practice which is something I think that happens pretty often but it was just something that I had never experienced, and have actually not experienced since then** (my emphasis).

The benignness of industry is also described as 'this thing that happened.' But importantly, accompanying the feeling that nothing overtly out of the ordinary took place, was the feeling of discomfort.

Only a student from the U.S. noted that there was any kind of shift in this dynamic. An AMSA activist practicing as a resident in Oregon said:

> You know like [physicians] have in many cases been practicing for ten or twenty years and it's just part of the reality that drug reps are everywhere and always you know bringing trinkets and you know gifts and whatnot and you know buying lunches and you know taking people out to dinner. **And that's changing** and I think some of the older physicians are not liking the changes and they kind of liked being treated well in that way. And so depending on the person you could have a very different experience if they're your mentor and you're in their office and they're schmoozing with the drug rep and you know accepting gifts from them versus you know someone who has a very different idea about that. I think in medicine we learn a lot by our role models – whether its ethical issues or clinical medicine or you know how to make decisions – so I think those moments are more powerful in a lot of ways than, you know, anything we could teach in a classroom or you know any lecture that I could give to my fellow medical students is going to be overshadowed by what they see, you know, in practice (my emphasis).

This student recognises that the relationship with the preceptor is not only an important part of medical education, and therefore represents some of the tacit ways in which industry influence is integral to medicine, but also that physicians have a vested interest in their way of doing things – subtly these students appear to learn that challenging the role of industry in the clinic means challenging their supervisors approach to medicine. But interestingly he notes that there is a shift taking place, where the normalisation of

industry presence is coming into question – and that this is may be putting doctors in an uneasy situation – perhaps the tables are turning. It is notable that this student is centrally involved with the Pharmfree campaign, and is engaged in the process of change. He notes that his own unease over pharma influence led directly to his involvement with AMSA. He had a course of action that acted as an outlet for his unease, which Canadian students did not seem to share.

Education about Industry

As these anecdotes illustrate, when students entered the clinic they were often unprepared for how to deal with the presence of industry. This has been acknowledged by most of the literature addressing industry influence and medical education mentioned earlier. Some of the participants in my study, from both the U.S. and Canada, said they had been at a school where industry presence was banned entirely, so they had never encountered industry representatives. Thus the lack of exposure made them feel unprepared when they met with overt and consistent presence in the clinic. Some argued that industry should be present in early medical training so they become familiar with its presence and develop the skills to negotiate their relationship to industry. But most were opposed to industry presence in pre-clinical years. Instead, they advocated for education about the industry to be embedded in the curriculum throughout, particularly right before entering the clinic, so they were prepared for the presence. As a student from a school in California put it:

> I think the biggest disservice the health advocacy on this issue can do is to implement these very sort of clear firewalls that separate medical students from industry influence but then not have any sort of underlying explanation or education on the basis of these policies. And so you get medical students who have just never really been exposed to the industry coming out into their

> residencies that aren't necessarily an Ivy League institution finding themselves overwhelmed by something that has never properly been explained to them.

This notion of how to explain industry influence 'properly' is clearly debatable. There is some training on the topic at many medical schools across North America. But according to participants, the training that did exist was vague and brief and ultimately insufficient. For instance, there would be one optional lecture on the subject in the entirety of the curriculum. At other schools, students would have one session that generally discussed the topic of 'Ethics,' where break-out groups would discuss euthanasia, assisted reproduction, and other topics. Sometimes the influence of industry would be one of these topics, comprising about 20 minutes of the entire curriculum.

Often students had a lecture or a course called "professionalism," "doctoring," "determinants of community health," "doctor, patient and society," "conflict of interest" and so on, in which the topic of industry influence was one of many different topics that addressed the 'social' or 'ethical' elements of medicine. This seemed to be more common in Canada, given that more Canadian participants talked about these kinds of courses. But students from the U.S. also mentioned the courses and discussed them in the same way – indicating that they were brief and shallow with respect to their handling of the topic of industry influence.

A student from a University in Ontario said his 'professional competencies curriculum' was meant to deal with the "business side of medicine" - meaning communication skills, ethical skills, legal skills. The fact that these types of skills are listed under the 'business' side of medicine reveals something about the way in which the 'social' elements of doctoring are framed. This student did not feel that he would get

an education about the industry's influence in medical education in that curriculum, so he relied upon his preceptors for mentorship. Other students listed things they did not learn from this aspect of the curriculum: how to speak with a pharmaceutical representative, what kinds of questions should we ask of them, what are the financial implications of clinical decisions, what does it mean to prescribe drugs that are under patent versus older drugs that have been proven to be effective, etc.

According to the participants, courses in 'doctoring' and 'professional competencies' did not seem to carry the same weight as other courses – sometimes attendance was not mandatory, and this resulted in low turnout. A student from a University in Ontario said:

> We have these sessions on professionalism so in which we discuss sort of you know everything from being on time to how to deal adequately with conflicts in issues and that's included for example.

A student from a school in Florida said:

> We had very little communication training. We had very little narrative training, and even more than that our medical professionalism was limited to a very small portion of our doctoring course which had to cover everything from ethics to professionalism to maybe one lecture on humanities, to physical diagnosis skills, it was basically the trash heap of everything else that needed to be taught but was done in a such a way that students never wanted to go to lectures, never really wanted to participate. And I'll catch that by saying that in my second year we had these sessions called "Professionalism, Ethics and Legal Medicine" and they were actually small group based whereas all the other sessions were large group based. And as anyone can imagine the small group sessions went over a lot better.

These two comments demonstrate that these more 'social' topics were not considered to be as important as the science-based curriculum. Students who had small group-based discussions as a component of their medical education seemed to speak favourably of them, but attributed the usefulness of the experience to a tutor or

professor who happened to be interested in that topic, who happened to be teaching the course that year. In this way, the education on industry seemed somewhat haphazard. The student from Ontario continued:

> I think our sessions are primarily that we have scenarios and we discuss them in a group setting – a small group setting – with a tutor. And usually the tutor is a physician with an interest in ethics or an academic with an interest in ethical issues. So we've had discussions for example, 'you're a physician, this pharmaceutical corporation offers you this weekend away package to prescribe medication, how do you feel about that.' So we discuss it and I think overwhelmingly what we come to the conclusion of is that anything that influences your care plan that isn't explicitly trying to maximise the care plan of your patient is an ethical conflict.

This student said this class was held once per semester, and that the sessions were mandatory. Another student from a school in Alberta said that in her course called Patient Centred Care they spent 20 minutes of one class talking about ethical guidelines, and the subject of the pharmaceutical industry's involvement in medicine came up once:

> And really the person who gave the lecture is a lovely family physician and I'm sure she has a personal view on it, but she has tried to stay very strictly to the guidelines about what are legislated for physicians about what you can take from a pharmaceutical company. There was quite a range of opinions in my class. And we sort of talked about 'what's a pen?' What big deal is that? Versus you know well if they're going to pay for my whole family to go to San Diego for a conference why can't I take that?

Later she said:

> We did have a multiple choice question on what we can accept and not accept from a pharmaceutical company. But it would be nice to see is people actually being forced to explore that parameter and what that really means.

Other students who had attended one optional first year lecture on the topic reflected on the fact that they felt under-educated about industry influence. A student from a school in Alberta said because the institution had a conflict of interest policy in place, faculty

and students alike assumed that they did not have to address industry influence in the classroom. He said:

> But you talk to the students and they have funny views on this topic, right? A lot of students are like what's wrong with taking stuff from Pharma? So even if they, like we we prevent them from taking stuff right now, they're still somehow getting it in their heads that it's okay. Which defeats the purpose of not exposing it to them.

Participants were in general agreement that simply eliminating industry influence without an accompanying educational campaign in the pre-clinical years did not really address the problem, since once they entered the clinic they would have to confront the issue head-on.

In both the U.S. and Canadian contexts, regulatory and professional bodies had acknowledged the need to ensure that there is no pharmaceutical industry influence on the campus, but there had been little accompanying effort to educate students about why. An activist with AMSA saw the lack of industry presence in the pre-clinical years as a problem:

> I'm sure they influence students in training like interns, and residents, and doctors, because maybe they actually see them, like, across the wards, like in hospitals. But from my experience and from people...you don't really talk about it at all. Well you talk about it in the sense that professors – well – some professors might name drop and say, 'Oh, I work for this company, x, and blah blah blah blah,' but you don't usually talk about their influence and what that means – what that could mean for your, like, practice.

Many students believed strongly in the importance of education during medical training, so they weren't blindsided when they entered the clinic.

These experiences demonstrate that even when the medical school takes a stance against industry presence, once students enter the clinic the presence is all around them. The issue was identified as a key problem in both the U.S. and Canada.

In the U.S., AMSA has initiated the "Pharmfree Curricula," calling on medical schools to create curricula that prepare students to interact with industry. This campaign is part of the Partnership to Advance Conflict-Free Medical Education (PACME) also involving the National Physicians Alliance, Community Catalyst and the Pew Charitable Trusts. In Canada, the CFMS policy statement adopted in 2011 addresses the need for education on this matter. Faculty have worked with the World Health Organisation (WHO) and Health Action International (HAI) to publish a student manual on how to understand and respond to pharmaceutical promotion.

Conclusion

The notion of a 'hidden curriculum' is relevant when it comes to the pre-clinical portion of medical education, in the classroom, but I would qualify this by saying it is not hidden to all students. Some students notice the industry influence in their classroom experiences, as some of the anecdotes above demonstrate. Furthermore, as will be explored in the next chapter, the 'hidden' aspects of the way industry influences medical education in the pre-clinical years of medical education is only hidden if students do not see it. By this I mean that things like industry ghostwriting of studies used as educational materials, professors' positions on speaker's bureaus, and industry sponsored educational lunches might not be recognisable at first glance. Many students do not see it, and thus it does remain 'hidden.' But when students make an effort to talk about them and expose them, they are brought into view. Thus the degree to which the influence of industry was hidden depended on the extent to which students were paying attention to its potential presence.

The comments from these participants do not seem to support the 'entitlement' hypothesis, that students become cynical and self-pitying as they move through medical education, ultimately feeling that they deserve gifts and special treatment. However, some of the participants of this study believed that this was the case, which was evident in the way that they spoke about their peers. For instance, a student who did her medical education at a University in Massachusetts said she wanted the students to be educated about industry before they got to the point where they felt the need to defend it:

> I think basically that once someone is socialised, it's too late. So we need to look at how that socialisation happens so that we can intervene before that.

This participant's point about a physicians effort to defend their relationship with industry because they are already invested in it is important. It makes sense that those who feel implicated in the problems with industry influence would feel defensive. But this notion that there is a period of 'socialisation' that ends when a medical student becomes a doctor suggests that we are not always engaged in social interactions, and assumes that a physician cannot change his or her attitudes and practices. There is an insinuation that one is 'socialised' during the educational process, but this does not account for the fact that the interactive social process involving actors and their environment carries throughout education and beyond and is always subject to changing contexts.

The findings of this study demonstrate that the challenges involved with being critical of industry influence become more obvious and require more conscious effort to navigate when a student enters the clinic environment. It is in this environment that ideals about medicine come into discussion – they become relevant – they matter.

Perhaps it is the clinic that is the most important site to create avenues for discussion and debate. If we understand the first years of medical education to be the only site at which students can exercise any agency or develop a critical perspective on industry influence, efforts to organise any meaningful change will be quite limited. If it is the case that the clinic could be an important site for dialogue on this issue, the matter of student-physician hierarchy must be addressed.

The perception that students are socialised to accept industry and then cannot be convinced otherwise is not borne out in this investigation. The participants of this study acknowledge that they sometimes accept the 'perks' doled out by industry representatives in a clinic context, but they do so reluctantly, feeling that they do not have much of a choice. They also have strategies to avoid accepting gifts or attending dinners, but these are what could be called 'passive' strategies. For example, they might pretend to have a scheduling conflict to get out of attending a pharmaceutical company lunch. They do this for the purpose of preserving the relationship that they have with their superiors, because this relationship is integral to their future as physicians, and because the power dynamic is entrenched. Interestingly, where students felt that they were engaged in a movement to express their critical perspective about industry, they talked less about strategies to avoid industry influence in the clinic.

Finally, my findings support the literature from medicine that industry is present throughout medical education and that students feel undereducated about this matter. My findings extend beyond these conclusions to address the interpretive capacities of medical students, building on early sociologies of medical education but also revising the sociology of medical education to attend to the broader political context. The

contributions from these participants provide insight into the hierarchical relationship between student and preceptor and also an ideology underlying physician-industry relationships informed by neoliberal frameworks. These participants were conflicted about accepting lunches, gifts and samples, but did not know of a medicine without these features. Here, the neoliberal ideology that societies are composed of producers and consumers motivated by material or economic considerations (Coburn 2000: 138) has seeped into medical education in the very assumption that marketing is a valid component of medical education. The struggle of consciousness that these participants conveyed began with an uneasiness about coming into contact with that ideology.

Chapter Seven: Resisting Pharmaceutical Industry Influence: The Activist Curriculum

While there are many ways in which students attempt to manage or live with industry influence, and the perceived lack of choice in engaging with industry, there were also students who openly resisted industry influence. This chapter outlines the way that the AMSA Pharmfree campaign operates, revealing how engagement in that campaign affects students' thinking about the issue itself and more generally, about their ability to effect change. The students who were involved with AMSA's Pharmfree campaign were more confident about their ability to challenge the existing order of medical education, because in doing the work of the campaign they took responsibility for the content of their medical education. Some students in Canada were beginning to engage in this kind of campaign building, but many resisted industry influence on their own. This also affected the way that they perceived their role in effecting change. The Canadian students were more likely to see their superiors as responsible for changing medical education.

Both AMSA and CFMS have policies against accepting any industry funding. AMSA's policy was adopted in 2001, and CFMS was adopted in 2006. Both organisations had engaged in the debate over the ethics of industry funding when they took this stance, but the subsequent actions to address the problem at a broader level diverged considerably. In general, students in the United States and Canada differed in how they addressed the presence of the pharmaceutical industry. The primary difference in organizing between students in the U.S. and Canada was that in the U.S., students had a national campaign to rely upon for resources and support, whereas in

Canada this did not exist. This had an impact on the way that students who were critical of industry influence approached the issue. Students in Canada were more likely to use negotiating strategies mentioned in the previous chapter and rely on faculty to lobby for changes to policy and curriculum. In the U.S., students were more engaged in efforts to change the nature of their educational experience. I will suggest that access to a political campaign to address industry influence had an impact on students' ability to conceive of changing the structure and content of their medical education.

The Pharmfree Campaign

The AMSA pharmfree campaign was started in 2002 as a national movement to reduce conflicts of interest in medical schools and academic centres. Their launch statement begins: "Pharmfree because the practice of pharmaceutical gifting to students and physicians increases the costs of health care for patients and does not primarily serve patient interests" (AMSA 2013). AMSA is a student-governed national organization. It began with educational campaigns to empower students to educate fellow medical students about evidence-based medicine and what it means to go Pharmfree. In 2004 they introduced the first National Pharmfree Day, dumping thousands of pharma-branded pens and paraphernalia outside Pfizer headquarters and beginning a tradition of an annual day of Pharmfree activity across the country. Since then, the campaign has undertaken a national survey of medical school pharmaceutical policies and produced the Pharmfree Scorecard, which will be explained in more detail below (AMSA 2013).

In part the success of the Pharmfree campaign was spurred by the events at Harvard, which had a ripple effect in the U.S., demonstrating to students across the

country that their efforts to reform their medical education could be effective. As a student from a school in Massachusetts put it:

> I think it brought a lot of attention and then I think people started you know other medical students realised that they actually could have an effect on this issue and change the way their medical schools did things. It wasn't just that like they had to sit around. And you know, have things happen to them. They could change things. So I think that was a big way that it inspired people. Um and it helped too that the people at the, the folks at Harvard that organised this were very active just in general but also became active in AMSA and came to national events and just you know were able to talk to folks at other schools and you know, I think the, one of the biggest things that I liked about being a part of AMSA was that interaction. It definitely facilitates the sharing of ideas. Getting excited and networking with people and you know, using those connections to do things that, ah, you might not have necessarily done by yourself. Or if you didn't know that other people were doing them.

This comment reveals not only the importance of a campaign in organizing efforts nationally, but also of a network of support that can give students confidence. For many, directly challenging Faculty members, Deans, and sometimes government representatives can be daunting. The fact that they organised together meant that these students were not shouldering this task alone, but they also had a way of sharing successes to demonstrate that it was a worthwhile endeavour.

Participants from the U.S. who were engaged in the national Pharm-free campaign focused on conflict-of-interest policies. As noted earlier, this campaign uses the "Pharm-free Scorecard" which evaluates and grades the COI policies at every U.S. medical school. More recently, the campaign has included the "Pharm-free Curricula," which is a new project to help schools integrate training on issues surrounding industry interaction into medical school curricula (AMSA 2012). These campaigns would not exist if students were not on the campuses working to bring them to life and students took up these campaigns in numerous ways.

Some of the participants in the Pharmfree campaign acted alone or in a small group; some participants were plugged into a national organisation to gain resources and support; some quietly resisted based on their own research and values; some were self-described activists, and many were not. All of the students who were asked said that they were not in the majority when taking up the cause of industry influence. Their impression was that most of their peers don't care about industry influence, accept it with quiet resignation, or wholeheartedly defend it. Even the students who had a school with an AMSA chapter and an active Pharmfree campaign said that most of their peers were not actively opposed to the influence of industry. They said that most were not actively in favour either. Participants suggested that most medical students were somewhere in the middle – not entirely apathetic, but not attentive to this issue – it was thought that most medical students are just trying to get through the considerable work load that comprises medical education. According to the participants who were most engaged in the campaign, there is an opportunity to intervene with students who are not aware or interested by simply raising the issue and putting it on their radar. This work took place at several levels, outlined here.

For many, work in the Pharmfree campaign began with education. Members of the campaign also described a process of being educated in these matters themselves. A few were exposed to critical books about industry influence before they started their medical education. A student who attended medical school in Ontario said:

> I read a book that really influenced me, it was called the truth about the drug companies by Marcia Angell? Um, she was an editor of the New England Journal of Medicine for more than 20 years so just reading about her, I trusted her and what she wrote about the pharmaceutical companies.

This student read these works before medical school during a Master's in health policy in Canada. A student from Nevada also did some research before medical school:

> Oh god I don't even know where to start with Overdosed America, I mean I think I read it in a period of two days even though I had started work at that point. I read it the summer before I started medical school. I've always, I've never read fiction really. I've always read a lot of non-fiction books. And I remember seeing it and thinking 'Oh I'm starting medical school,' and kind of already having a bit of a critical view of pharmaceutical industry and pumping people full of pills so I thought 'Oh this might be good' and then I read it and I just couldn't put it down. And just, same thing, kind of ah, like the first time I read the little brief about AMSA's Pharmfree movement it was just 'Oh my god, I totally see it in hindsight, how did I not pick this up before?

Others had attended AMSA's three day Pharmfree Institute, formally called the Pharmaceutical Policy Leadership in Medicine Institute, described by AMSA as: "as a way to train undergraduate, graduate, and medical students on pharmaceutical policy at not only their institutions, but also nationally and internationally" (AMSA 2013). The institute involves speaker sessions on pharmaceutical policies and research, as well as sessions on advocacy tactics and campaigns work. A student who had been attending a University in Oregon said:

> I just got an email about this institute that was going on in DC, in Washington DC about the pharmaceutical industry and um, um kind of public policy and how you know, public policy and medicine interacted, and I thought that was kind of interesting – I sort of had an interest in public policy anyway, and um and you know, had this sort of interest in the pharmaceutical companies after these experiences that I sort of told you about. So I applied for it and got in and I think it was about three day institute so it sort of put you up in a place there. And then you're at the AMSA headquarters and then we basically heard from a bunch of different experts in the field of policy and um one of – there was like a congressional staffer who spoke to us and then folks who work for the Public Citizen which is an organisation that kind of looks out as a consumer advocate, so ya it was cool. So it was me and about 12 other medical students from across the country and there was a couple residents too actually... so it was definitely a formative experience in that I would meet all of these people who I would end up working within the next couple years around these issues. And then you know made some friends who I still keep in touch with, so that was kind of the

> beginning and then subsequently I just kept kind of being involved and helping out with the campaign.

Several students who spoke about attending this Institute said they went on to have a leadership position in the AMSA Pharmfree campaign. Those who spoke about organizing the institute said they had made an effort to encourage students from medical schools with no policy or minimal policy to attend, to help with strategies to implement or improve conflict of interest at this institution.

This education often took place outside the classroom, in lectures organised by students or faculty on or off campus, in campaign organising meetings and through the AMSA Pharmfree Institute. During her first year of medical school, a student from a school in Massachusetts went with other members of the campaign to see Marcia Angell speak about industry influence in medicine:

> I think for me it was the first time where someone actually showed me the numbers. She [laughs]. She got a lot of data. She was showing how much pharm companies spend on like R&D versus advertising, um. How they skew their data to make it look a certain way, um. And she was very much on the polar end where she says doctors should have no relationship with pharm companies, like whatsoever, like she was very on that end of the spectrum.

Events like this were sometimes transformative for members of the campaign. Those involved with the Pharmfree campaign also organised lectures with guests who have a profile researching pharmaceutical industry influence, or they put on debates when they think the crowd will be more amenable if they can 'hear both sides.' A former student from a school in Massachusetts who was part of starting Pharmfree at his school reached out to his peers through classroom talks:

> I did talks – you know for first and second years and tried to kind of present the issues as straightforwardly as I could – sometimes it was contentious. And people would come up to me afterwards and say 'what about this thing?' 'what about samples?' 'what about … and so ah I think it gave me – I mean just to

> speak to the confidence thing – it was a way that I was able to take an issue and and you know share it with my fellow medical students in a like public way – I definitely got really good practice in kind of presenting something – and and you know I think that helped my confidence and you know other parts of being a physician.

Another student described himself as a bit of a superhero. His school in North Carolina was not interested in developing their conflict of interest policy, so he started organizing a local Pharmfree campaign by talking to his classmates and telling them that if they wanted the school to develop better conflict of interest policies they should sign a petition to be sent to the Deans. He then started speaking to classrooms and circulating this petition.

> Student: So at this point I was kind of like a local Pharmfree hero or nemesis.
> Kelly: Did you have a cape?
> Student: I didn't have a cape but I did wear my Pharmfree shirt. And definitely was not in any way shy about voicing my views to the point where professors I didn't know would stop me and ask how things were going and if there was any big news about how things were going. Actually in that time I also submitted written testimony to U.S. congress in summer '07 as they began to look, specifically the U.S. senate special committee on aging began to look at this issue, so that in North Carolina seemed like a big thing to everyone – so I was kind of involved in Capitol Hill.

A student who was starting a Pharmfree campaign at her school in Nevada wanted to begin with discussions amongst the student body, which could hopefully turn into a local campaign:

> So that's one thing I really want to do is have some sort of lunch time speaker related to that. Um, not knowing how the faculty would respond to me wanting to like start some huge movement about like having them disclose every time they speak or have a lecture. I'm not sure how much support I would have for that. I like, beyond belief I would love to do that, but you know kind of start small with more of the educating the future doctors and then move it out is possible.

This student spoke to me at the AMSA convention, where the Pharmfree leadership organised a session to teach conference attendees how to organise a Pharmfree

chapter. They reviewed the 'myths,' and 'facts' of the drug industry and shared strategies on how to start up a campaign locally. The notion of 'starting small' was generalised as an effective strategy at this meeting. Many students active in the Pharmfree movement said their involvement began with a small 'core' group of students who met regularly and began with modest attainable goals.

Another aspect of the campaign was what one student called the 'behind the scenes' work – emailing, researching, and meeting with students, faculty and deans. In her first year of medical school, one student from a school in Massachusetts was working with others to change the curriculum at her school:

> I've worked a lot with the second years on like, the behind the scenes stuff. You have to meet with administration you have to meet with faculty. We have to a lot of times it was really just a lot of emailing and um like we don't agree with this like one policy, can we talk about it? Things like that.

Much of the work of the Pharmfree campaigns began with this kind of activity. Students would meet in a small group, either as part of the AMSA chapter or a Pharmfree committee, and decide to work on an event that addressed industry influence in medical education, or address changing the conflict of interest policy at the institution. Some worked on curricular change, such as the student above. Often the leaders of the Pharmfree movement in AMSA will encourage students who are beginning to be involved in the campaign to do some research into their conflict of interest policies and provide an evaluation – this leads to coming up with a more robust policy and then lobbying the administration for changes.

A student from a school in Washington described this process:

> When I was in my first year of med school the policy was not finalised yet so it was still out there, so I reviewed it. And at that time it said 'we discourage you from accepting gifts from drug companies' and we obviously thought it should be

> a ban. So put together a sign-on letter and circulated it and had like 150 or something students sign on to it and then we handed it over to the Dean. And what happened was really interesting. Because I got a letter back from the Chair of the Conflict of Interest Committee who was in charge of that policy saying 'heard all of these arguments before, we're not going to change it, it's too late, we've already had a comment period, you're too late.' So it was like 'oh, you know, that's a bummer.' And then a couple months later they did change it and then finalised a policy with the gift ban. So I don't know what happened. Maybe it worked, maybe somebody else put pressure, maybe they just changed their mind. Who knows, but they did change it.

Sometimes an administration was amenable to working with students on drafting a policy. At other times, policy would be drafted without students, immediately following some student lobbying on the matter. And finally, at other times students were completely ignored.

When students found that they were not making progress with the above strategies, they tried to make the issue public so that media attention could illuminate the problem for a broader audience and in some cases put pressure on administrators to listen to them. What happened at Harvard is an example of this, according to the participant who outlined the trajectory of the movement's progress. A student from a school in New Mexico also explained that they felt they needed to resort to a public protest:

> If they say 'no' and I say 'well it makes sense,' and they say 'okay great. No," it's one thing. But if they say no and I'm like 'alright,' and the next day I walk in with 45 students and that's going to get a different response. And then if I call the journals and I say 'we've got this thing' and they say 'great great it makes sense. What did the Dean say?' and we're like 'well they said no.' and it's like the issue dies. And it's like well it's not really good news. But if I can get 45 people with placards shouting and screaming and it gets on the news, then that'll put pressure... And this is what happened – they're worried that a conflict of interest policy would discourage good professors – because they would say it's an invasion of their privacy – then they'll say '[participant] I'm sorry, the student body doesn't want this.' But if the student body wants it, they'll learn. They'll listen. So that's why I do it. Plus in an academic setting where everyone – there's no longevity, every four years there's a turnover of people – if I don't educate people

> and a lot of these issues take four or five years. The policy where the three year phase out – that took four years. The person who started it is now a doctor. Before the policy is done – and he was in fourth year when it got um, started, when he sat in on meetings – but luckily he worked on educating. So after they started doing it so now when they're not following we give the feedback to the administration saying they're not following. But their eyes aren't there and the knowledge and the passion aren't there then it won't happen.

This student describes a pitfall of much student organizing – the population is transient. After a few years they finish their education and move on. Lacking a movement, often the work of one student is lost when she or he leaves. Part of AMSA's work is to develop a group of students who take responsibility to bring in new members that can carry on their work and track progress of a school to provide some institutional memory. This student also reflects on the power of organising collectively. He breaks down the power dynamic between student and superiors (deans, faculty, preceptors) by demonstrating the strength of collective organizing.

If a school did not have a good policy or an active Pharmfree campaign, members of the AMSA leadership would contact students at that institution, either through the student senate or through an existing AMSA chapter, and ask them if they wanted to participate by helping to review their own conflict of interest policy. Some of the leadership from AMSA travels around the country visiting students at schools where there is no conflict of interest policy or where the policy has received an 'F' grade. They talk to students about what policies are being implemented and which are not – as one AMSA member said, students on the campuses are the "on-the-ground eyes." The two campaigns that Pharmfree stresses currently are The Scorecard and the Model Pharmfree Curriculum.

The Scorecard

AMSA's Pharmfree "Scorecard" is not just a measure of how medical schools compare to each other and how well they address pharmaceutical industry influence. It is also a tool that students used to develop campaigns, create awareness about conflict of interest and the role of industry, and gain leverage in negotiations with their administration about addressing the problem. Thus the scorecard was not simply an evaluative tool – it was an organizing tool as well.

A student from a school in Florida said originally her school got a D on the scorecard. After this, some students and faculty went to the Dean to say this was inexcusable. She said that conflict of interest had been a problem at her school, even causing some faculty members to resign. Eventually they swayed the Dean:

> And I think finally our Dean started warming up to it. He followed some of the procedures that AMSA laid out. There were some changes, he's very much a proponent of getting rid of conflict of interest. And our school I think the last time it was done got a B, so we're definitely moving up. But the issue is the curricular reform part.

This was a fairly common story from those who had used the scorecard at their institution. A bad grade would serve the purpose of first, demonstrating to students and faculty at the institution that there was a problem, sometimes leading them to take action, and second, it would put political pressure on the school's administration, who did not want bad press. Several students mentioned that they used their administration's fear of bad press as leverage. A student who went to school in North Carolina said:

> ...so we submitted a petition to the Deans and started actually to get a whole lot of press as students who are raising a ruckus and why isn't this school really taking this seriously? And [the University] is very close to a couple of other well-known institutions so any bad press is not considered a good thing. So the school began to actually sit, develop and prioritise getting at least as a start a

> conflict of interest policy in place and I created on my own a fourth year talk to be given to fourth year students specifically on conflict of interest.

Sometimes initial use of the scorecard was adversarial, as students would confront the administration and say that they should work together to create some sort of conflict of interest policy if they didn't want to get a bad grade. As one student from a school in New Mexico put it, once schools introduced a policy their grades improved and the scorecard could not be used as effectively because going from a C to a B was not as dramatic or newsworthy as going from a D to a B, for instance. But this student noted that what happens after that initial negotiation is that Deans will contact the students, or AMSA to ask what they can to do improve.

> And basically it becomes a great positive feedback model, where they say, basically we get to come and say 'we want to give you A's, we want to help you but this is what we need. And they say ' okay what do we need to give you to allow you to help us.' So in that way over the past little while actually we've really improved and changed the way some schools are.

Another student said that originally the scorecard was a survey of medical schools. AMSA activists called the schools and just asked them if they had a policy, then rated them based on the policy. "Since then it's become much more – much more of a process and much more of a detailed evaluation of policies" said this student who was a resident in Oregon. This student, along with others, explained that at some schools policies are under continual revision with the participation of student, faculty and administration. This process had a democratising effect on the experience of being a medical student: "It was weird to be a medical student and be calling up Deans of medical schools and being like – you know, asking them for things and them taking it seriously. I was just not used to that – being in that position where I was asking for things from Deans as opposed to the other way around."

One participant described what it was like to be at a campus that had industry presence and participate in changing this. When he got to the school they were an "open pharm campus," which according to this student meant that there are no restrictions to pharmaceutical industry presence in the education – lunches are provided by industry, pens and toys are given out to students, etc. During his first year, students organised for a policy to phase out pharmaceutical industry materials, representatives and logos on educational materials over a three-year period. He said that during the campaign a lot of students would just remove drug logos found around the campus by putting stickers over them. He had also participated by meeting with Deans. When he and some peers came across a lecture at the undergraduate level that used the same content as a talk for Continuing Medical Education that was paid for by a pharmaceutical company, the students took a recording of this lecture to the Dean and said they would hold up their school as an example of conflict of interest. In the context of a national Pharm-free campaign, where Harvard University had implemented conflict-of-interest policy under much public scrutiny, this was a compelling argument. The student said: "I went in there just belligerently threatening to call every press person I could and they were like 'okay hold on...you can do it if you want, but let's sit down and work on a policy. Let's talk about conflict of interest.' And we're now negotiating policies."

A student in Florida said that in her first year there were a couple of lunches sponsored by pharmaceutical companies held in the student building – there was food, so they attracted students. But she hasn't seen anything like that since that first year. Her school got a D on the Scorecard, so students and faculty approached the Dean,

who recognised that this issue was gaining importance and cracked down. The Dean had sent a couple of school-wide emails since then notifying the progress of a conflict of interest policy.

Another student from Ohio said that he and some other students sit down once a month and talk about how to progress on policy. They use the fact that they got a D on the scorecard as a bargaining chip, telling the Deans they would contact the local newspapers if a policy didn't emerge addressing the issue of Conflict of Interest: "The Deans didn't want us to talk about this, cuz you know. So at one point we were kind of talking with our local newspapers, kind of a bargaining thing. And in the end because they kind of worked with us we didn't release it." "Our view was that if the Deans stopped trying to address it, it would be something we would try again."

Part of the effectiveness of this measure is that it speaks a language that medical school administrations understand – of quality and accountability. The campaign has effectively used a grading system that replicates the measures the institution puts in place for administrative regulation and evaluation. Scorecards have become a device that is used in a number of contexts to compare disparate sites on the basis of a common numerically-based language, often assumed to be an objective measure. This tactic has advantages and disadvantages. The obvious advantage is that it gave medical students leverage in their campaigns to address industry influence in the medical school. For measures such as disclosure of conflict of interest and limiting gifts from industry to students it proved very effective. The institutions have been attempting to meet the standards set out by AMSA's campaign. The efforts of this campaign have been supported by U.S. Senator Charles Grassley, who in 2009 supported AMSA's

scorecard by asking 23 medical schools for information about their policies for conflicts of interest and requirements for disclosure of financial relationships between faculty members and the drug industry. Grassley has also worked to achieve disclosure of the money that pharmaceutical, medical device and biologic companies give to physicians, an initiative that Obama's administration has committed to in 2011 but has yet to become law.

The disadvantages of the scorecard are less obvious and emerge as the students describe the effect of their experience of industry influence. Even in institutions with excellent conflict of interest policy, these students were still exposed to the explicit influence of industry as soon as they were in the clinic, and more importantly, they had no access to education or discussion about how to resolve the conflict that this represented. Thus while the result of the campaign was to remove industry from their education, the effect was to remove all discussion of industry as well. Some students recognised this.

Model Pharmfree Curricula

While the Scorecard was a popular and effective tool to raise the issue of industry influence and put pressure on institutions to address it, it also highlighted the innumerable elements of education that cannot be evaluated with a scorecard. Over half of the respondents from AMSA said they felt like more education about industry was necessary during pre-clinical medical training. Students in the leadership of the Pharmfree campaign have acknowledged this serious absence of education about industry and conflict of interest in medical schools across the country. The AMSA Pharmfree campaign has initiated a second wing of the campaign, focusing on

curricular reform "to help schools integrate training on issues surrounding industry interaction (e.g., the psychology of influence, ethical and practical issues surrounding conflict of interest in medicine, the drug development process, how to critically evaluate industry claims) into their medical school and residency curricula" (AMSA 2013). They call on medical schools to implement curricula that "prepare students to interact with industry in a way that protects individual patients, promotes public health, and preserves the public trust in medicine (ibid). AMSA's Model Pharmfree Curriculum aims to provide students with the skills necessary to:

> 1) Understand the nature of conflicts of interest and how they pertain to the practice of medicine;
> 2) Recognise how industry can impact clinical care and develop strategies to mitigate the negative influences; and
> 3) Properly manage industry relations to maximise patient and societal benefit (ibid).

The campaign's "Evidence and Recommendations for a Model Pharmfree Curriculum" is a guide for students, faculty and administrators looking to incorporate a Pharmfree Curriculum into existing curricula (ibid). The campaigns "Model Pharmfree Curriculum" is a 21-page document that outlines the following "Curricular Competencies": Professionalism and Conflict of Interest, Drug and Device Development, Determining Drug and Device Safety and Efficacy, Marketing and Physician-based Practice, and Continuing Medical Education. The document also explains how these competencies should be taught, in which years, and by whom, quite comprehensively. Implementing such an ambitious curriculum at medical schools across the country is proving to be a challenge.

Each student said something different about how their curriculum addressed industry influence. Some had a first-year course on ethics where industry could be

addressed, some had a "pathways" program that allowed students to specialise in an area and receive extra distinction for their work. Curricula appeared to be quite particular to the institution and thus difficult to compare across institutions.

The scorecard could evaluate the presence of industry and the degree to which an institution allows industry to influence education. While the campaign surrounding the scorecard was often about eliminating industry influence from the educational experience, through policies banning gifts and lunches for example, educational reform in this case it requires inserting something into the curriculum. The question of what to insert involves decisions about what aspects of the pharmaceutical industry students need to know about, how they should be taught this information, and the possible alternatives to relying on industry for support. At this point the campaign seems to have settled upon Evidence-based medicine as a framework for answering these questions. I address this decision in detail in the next chapter.

The above strategies acknowledge what students did at a local level, which comprises the bulk of the campaign. But AMSA also worked at a Federal level, lobbying and proposing policy with the help of sympathetic senators. One participant of the study led a lobby day at his State capital where some students talked to legislators about industry involvement in education. At the lobby day about 12 students stood in their white coats nervously rehearsing speaking points when two men in fitted designer suits strolled by to lobby for the industry. Industry won the argument that day, which is not unusual. As the student put it: "deals were made, pressure was put on, and at the last minute the bills were killed." He reflected: "It's hard not to get a little hopeless when that happens – and to say 'oh, what's the point?' why don't I just try to make a good living

instead of being a pissed off activist? But clearly I remain a pissed off activist nonetheless."

While the students active with AMSA spoke about these significant challenges, they also acknowledged their victories. A student who was active at a school in North Carolina spoke about Senator Grassley's work:

> ...which when you step back and think about wow, this is this is a bunch of med students sitting around thinking that they are important enough to grade schools and here's a really high raking U.S. [Senator], and that's obviously after years of work including the testimony I mentioned earlier, and our years on Capitol Hill, that's kind of one of those moments where yes, the little people can win sometimes.

Whether discussing victories or challenges the students engaged in this campaign felt that it was having an impact.

There seemed to be some disagreement about the future of the Pharmfree campaign from within AMSA. For some, 'Pharmfree ' is no longer a relevant moniker, given the extent of pharmaceutical industry influence in research and medicine. When asked about the goals of the campaign, one student in the leadership of the organisation said:

> We want to make sure that you know, medicine ultimately is an enterprise that is objective, that offers the best treatment for patients, and also the most affordable treatment for patients, and that's not going to be the brand name pharmaceuticals that are marketed by companies.

When asked about whether the title Pharmfree fits that objective, she laughed and said:

> No it's not Pharmfree. And I think – the name – so we're going through a rebranding right [laughs] now, um, but the name was originally [laughs] was meant that we wanted pharmaceutical companies out of our medical education, so, or the influence of the pharmaceutical companies from our medical education. So we didn't want the influence of marketing in our medical education. So it should be more like 'marketing free' actually I guess. So yeah it's definitely not Pharmfree but it's more understanding what pharmaceuticals mean in the context of medical education and clinical practice.

Another member of the leadership of the organisation had a different perspective.

> So it's actually a big controversy within AMSA. Some people want to change it because -. So yeah, I think the way you phrased it was correct, it was initially a campaign looking only at medical education and I, and the AMSA position still is that the pharmaceutical industry should have no role in medical education. Now that we've expanded to clinical interactions and especially talking about research, the Pharmfree position doesn't fit as closely because AMSA's position is not that the pharmaceutical industry should have no role in medical research. We still believe it should be free of improper influence but the Pharmfree slogan really applies to medical education.

This student later said there was not really a controversy within AMSA. AMSA's official position was that there should be no undue influence of industry in medical education. The controversy came from organisations that wanted to partner with AMSA, who interpreted the Pharmfree campaign to mean that they were opposed to industry influence in research as well. The two participants mentioned above agreed that AMSA was not opposed to pharmaceutical industry influence in research. One of them acknowledged that this is a difficult line to hold because the two issues – education and research – overlap. Thus discussions about what this means for the campaign are ongoing.

Resistance in Canada

In Canada, there is no national campaign to address pharmaceutical industry influence in medical education, and the Canadian Federation for Medical Students had not taken an official position on the matter until very recently. Only a small group from the Université de Montréal, called the Le CLAMP, is quite actively critical of pharmaceutical industry influence in medical education but mainly operates on this campus and consists of a few people. The CFMS meetings have a history of splitting into two

groups, referred to by some meeting participants as "the suits," being the students who attended the formal decision-making portion of the organisation's annual general meeting to discuss matters of the organisation as a whole (some of them wore suits to the CFMS meeting) and "the scarves," being the students in the Global Health Program (GHP) (some of them wore scarves to the meeting). The GHP is the wing of CFMS that "will facilitate ethical global health education, advocacy, action and experiences through coordinated national programming," according to its mission (CFMS 2012 "About the Global Health Program"). The GHP met separately from the formal meeting of the organisation, arranging themselves in circle formation and working toward consensus on progressive policy. All members would converge during some portions of the annual general meeting. The two groups interestingly represented a gendered dynamic, indicated by the gendered nature of their clothing descriptors: mainly the people I spoke to from the 'scarves' were women. But there were also women 'suits' (who were not actually wearing suits). Members of each group participated in this study and were critical of industry. Some of the students in the GHP had at one point formed an unofficial "anti-pharma group" around 2008. This initiative died out for a while because the person heading it up graduated. Recently, it started up again, culminating in a 16-page policy paper called "Defining the Relationship: An Evidence-Based Review and Recommendations on the Role of Industry Funding in Medical Schools" (Holland et al. 2011). The report, which was co-written by five medical students from Dalhousie, the University of Alberta and McMaster, "seeks to outline what forms of student-industry interaction are appropriate, given the ultimate goal of training competent, patient-focused clinicians" (Holland et al. 2011). It calls upon members of CFMS schools to

implement recommendations which include the responsibility to prepare medical students for real-world practice by educating them about appropriate relationships with industry; develop policies with school administrations and medical student societies to monitor industry involvement in educational and extra-curricular activities; make it a requirement for lecturers and educators to disclose conflicts of interest with industry as defined by their home institution; and prohibit student societies from accepting gifts or funding for events from pharmaceutical companies (Holland et al. 2011). This report was prepared for a 2010 meeting of the CFMS but was tabled so that members could consider it further. A student from a school in Ontario who was involved in writing the report said:

> Our goal is for the CFMS to take an explicit stand on pharma and have a policy, which we don't currently. The CFMS does not have the power to mandate member schools? They can't mandate on pharma funding but I think it will send a really strong message um to the membership that we as students recognise that this is unethical um and I think it will also send a pretty clear message to the administrations of our respective schools just because they're all sort of across Canada on very different pages as to what funding is acceptable and isn't. Um you know should student med socs be allowed to accept funding from banks or what have you? And I think if CMFS sort of gets out ahead of the you know, administrative group um decision then we can sort of set the tone for what the scene will be in Canada.

The report was passed in September of 2011 with almost unanimous support. It included the resolution that medical student societies would be encouraged to not accept funding from the pharmaceutical industry for their events and also seek out education on how to interact with industry. A student who was at that meeting said she really noticed the suits and scarves division when the discussion finally took place on the plenary floor, where only a couple of students openly objected:

> The arguments were pretty standard, it was, you know, 'but they give us lots of money,' and, um, you know, 'are we,' you know, 'how are we going to be influenced by a lunch?' And people really don't buy the evidence that prescribing practices are influenced by things like, you know, like a cheap pizza lunch or a pen or whatever, and and you know and that's, I'm okay with that. I'm okay with people not buying the evidence? By the time I got to the end of the report my biggest thing was the optics of it. You know, fine, don't buy the evidence...but you know, even if you don't buy that and you don't think its true, and you think you can go to fancy dinners and not have any influence on what you prescribe to your patients, um, I think if your patients think that you are um, receiving any kind of throwback from the pharmaceutical industry, the optics of that enough to um, influence the, like affect the relationship of trust that you have.

This is the argument that she made during the discussion. There was also an argument that it was unrealistic to not interact with the pharmaceutical industry. She said "that is true. That is absolutely true." She said the resolution was about being aware of that and having a responsible relationship with the industry. She even thought that it needed to be a synergistic and positive relationship, which recognised that the industry produces sometimes effective drugs. The majority of the organisation was in support of the motion, in the end.

This notion of being aware of how to exist in partnership with industry framed the document's approach to education on how to relate to industry as medical students and future physicians. It states:

> Schools have a responsibility to prepare medical students for real-world practice by educating them about appropriate relationships with industry.
> a. Schools will provide an environment in which medical students can learn about industry relationships ethically and responsibly, for example through:
> i. Lectures;
> ii. Seminars; and/or
> iii. Workshops.
> b. Complete isolation from industry is neither feasible nor helpful in this process.
> c. Exposure to industry relationships and topics on conflict of interest should occur early in training.

Notably, this policy accepts industry influence as an inevitable part of medical education. The initial resolution, tabled in 2010, said that CFMS would support AMSA's Pharmfree campaign. A student who helped draft that resolution said that it did not get support and was ultimately removed from the resolution that was passed in 2011.

While this policy is a major step for the organisation, it does not entail an organised campaign comparable to the Pharm-free campaign. A few CFMS activists noted that it is only the beginning – that they would possibly organise such a campaign in the future. In the meantime, students in Canada who opposed industry often operate in isolation. As noted earlier, the students who did engage in campaigns challenging industry presence in their medical education worked largely on their own, at great cost. It took up an enormous amount of their time, in an already pressured overworked environment.

Many Canadian participants were involved with the CFMS or S4M but were not involved in any campaigns involving a critique of the pharmaceutical industry, despite their objection to its influence. One student from Ontario active with Students for Medicare said it's "the soap-box" she gets on commonly, but that she hasn't directly been involved in any campaigns. Another student from a school in Alberta said "I haven't [participated in a campaign about the pharmaceutical industry] and I think part of the reason is that it doesn't seem like such an issue for us? Like I'm not sure where we could lobby, although I think it is in a clinical setting very important and it's a huge ethical issue." This student from Alberta suggested that industry presence was more of a problem in the U.S. Some of these participants from Canada talked about the fact that there wasn't really a way to plug into such a campaign. A few within the CFMS had

unofficially started an "anti-pharma working group" around 2008. When I spoke to students from CFMS in 2010 the working group was not active, but as one student put it, "it rumbles."

As noted, in Quebec there was a group of students who were very active on the issue of pharmaceutical industry influence, called Le CLAMP, or le groupe de réflexion sur l'impact du marketing pharmaceutique, roughly translated to mean "group for reflecting on the impact on pharmaceutical marketing." This is a new title, changed from the previous Comité de Lutte Anti-Marketing Pharmaceutique, or roughly in English, "committee for the struggle against pharmaceutical marketing" which started up about ten years ago. They stuck with the acronym for recognition sake. A participant said some believed this former title to be too radical, suggesting some kind of armed struggle. They describe themselves as

> un regroupement d'étudiants, de résidents en médecine et de professionnels de la santé qui se penche sur les effets du marketing pharmaceutique sur la pratique médicale et le système de santé, et qui préconise une plus grande indépendance du système médical face aux compagnies pharmaceutiques.

Roughly translated to English, this means a group of students, medical residents and health care professionals who focus on the effects of pharmaceutical marketing on medical practice and the health care system and who envision the greatest possible independence of the medical system from pharmaceutical companies. They have a poster campaign featuring a piece of maki with pills packed tightly amongst the sushi beneath the slogan: "N'importe quoi pour vous faire avaler la pilule," or "whatever it takes to get you to swallow the pill."

In the year that I interviewed a member of this group, 2013, there were about six people active. Each year the group organises a presentation for second year medical

students at the Université de Montréal, which is actually a part of the curriculum. For the last few years they have done a voluntary lunch presentation where the speaker at the annual session for second year students presents to any other interested students. They also have a slot for a presentation at the beginning of the program's pharmacology course, generally addressing the influence of industry and introducing the organisation. Finally, they put together a set of guidelines for faculty relationships with industry which was accepted at the student general assembly in 2009 but has yet to be adopted by the faculty and implemented.

In Canada, with the exception of Le CLAMP, there was more trust in Faculty to do the work of critiquing industry. And in fact most of the progress that had been made implementing policies on Conflict of Interest seem to be faculty or administration led, sometimes motivated by recommendations from accreditation bureaus. Asked whether the CFMS would take on a Pharmfree-like campaign, where students were educating each other about industry influence, a student from a school in Halifax responded:

> Students are pretty inherently biased I think as it is. We kind of all have our own agendas. I don't know if I would trust us to do that because depending on who is in charge one year it might influence what is being taught or the education that is involved. Just like there are politicians from every different party there are students who have completely different views on this. So I would like to see something formal from - not peer education.

This student acknowledged later that no one is really 'unbiased,' but ideally the person to teach this subject would be a person completely outside of the medical profession. He did not even want to include ethicists in this category, because they are present in hospitals.

A leading member of Students for Medicare said that the issue is on their radar but they haven't made any policy statements – this work was more in line with the goals

of the Medical Reform Group and Canadian Doctors for Medicare because they are more experienced and knowledgeable about this issue. "If they were going to organise a campaign we could help them with the manpower," she said. A student from an Ontario University said that the CFMS had not initiated any campaigns about the pharmaceutical industry because "we probably expect our faculties to do that," He elaborated:

> We're a little different than the U.S.. There's a lot more pharm industry in the U.S. in medical schools than in Canada I would say, and most of our, I mean most of our preceptors and professors would be against pharmaceutical industry so they, you know, we don't necessarily have as much of a need to do that.

There are two contentions here, which seemed common amongst participants from Canada. The first is that industry is far more prevalent in the United States than in Canada. This is of course difficult to determine. My investigation indicates that currently the influence of industry in medical education is quite similar in both countries. It is possible that there was more influence from industry in the U.S. in the past, but because of the work of students in AMSA and movements like PharmedOut and work like that from Senator Grassley, this is beginning to change. Now in the U.S. medical schools that participated in this study, there appears to be little overt influence from industry in the pre-clinical years but still a great deal of overt influence from industry in the clinical years, both in hospitals and doctor's offices. In Canada, students painted a very similar picture. They did not see much industry influence in the pre-clinical years, but as soon as they were in the clinic the influence of industry was very present. The second contention is that most preceptors and professors in Canada are against the industry, a claim which does not seem to be supported by any research in this area.

Students in Canada who were critical of industry and wanted to organise were

quite isolated. A student at a university in Ontario said that, after he sat through an industry-sponsored lecture during his surgical clerkship which, in his opinion, demonstrated overt influence on the curriculum, he got involved with a group of students to create a statement on the need to separate industry from education. He ended up meeting with the Dean of Medicine on his own and now regrets that he didn't have anyone accompany him, or at least record the meeting. The Dean indicated that he had no idea that the industry has sponsored a lecture and made a commitment to do something about it. Some changes were made, but they did not remove the influence of industry. The institution said that they were working on a policy, so students dropped their position paper on industry.

Organising like this was isolating in a couple of ways. First, these students were not connected to a wider campaign and thus did not benefit from shared resources, materials and know-how about lobbying and organising. These are the primary strengths of the Pharmfree campaign. Many of the students in Canada had not heard of AMSA, and most had no knowledge of the Pharmfree campaign. The second way that these students were isolated is that they were not in communication with the larger body of medical students at the institution. Students who participated in the study from the same institution said that they were not aware of any other students resisting pharmaceutical industry influence. Some of these participants were attending medical school at a different time – with intervals of a few years in between initiatives – but this is also an indication of the isolated nature of the actions. While some students took it upon themselves to be active and voice objections, when they were finished the pre-clinical portion of their education often the issue was dropped, as they went on to the

very demanding clinical portion of their education, followed by the also demanding residency.

Students from Students for Medicare were more focused on Medicare, as their title would suggest, but several of the students had individually taken on campaigns to address pharmaceutical influence in their education. Advances in the realm of conflict of interest policy and educational reform appear to be led by faculty members in the Canadian context. The advantage of this for Canadian students is that they have the opportunity to be exposed to mentors and teachers who are critical of the industry and taking a lead in terms of addressing the problems. The disadvantage is that these students, who were activists in many other senses when it came to educational reform and health reform, were disengaged from any political campaigns addressing industry involvement, despite their strong stance against it. Students for Medicare certainly explored this issue – at their 2010 meeting, for instance, Dr. Lexchin held a workshop about the case for Pharmacare and the organisation made information distributed a faculty-led initiative to educate students about pharmaceutical promotion, called: "Student Manual: Understanding and Responding to Pharmaceutical promotion."

The Manual noted above "aims to provide practical training for students on how to recognise various promotional techniques and how to access quality, independent information about medicines" (Student Manual: HAI Global). It was published in draft form in 2009 and launched at a technical briefing in Geneva at the World Health Assembly with speakers from HAI and WHO. It was published on the HAI website and in print, in English, Spanish and Russian, and is currently being translated into French. It contains chapters on techniques used in pharmaceutical promotion, written by

prominent researchers in the field – Barbara Mintzes, Joel Lexchin, Arthur Schafer, Nancy Olivieri and more. This important initiative addresses very similar concerns and goals to AMSA's Model Pharmfree Curriculum and can be seen as complementary. The Guide is being used by some medical educators for courses and workshops. It is circulated at events focusing on the topic of industry influence, such as the Students for Medicare Conference and PharmedOut conferences. Distribution is mainly on request via the website. Importantly, this initiative is led by medical educators. Unlike the movement in the U.S., students are consumers of this initiative, rather than the actors who are shaping it.

The other organisation that has been intermittently occupied with this issue is the International Federation of Medical Student Associations (IFMSA). Some CFMS members discussed their participation in this organisation, which has included a Pharm-free Alliance. In the 2009 meeting of the IFMSA in Tunisia, AMSA brought forward a motion that the IFMSA and its member organisations no longer accept sponsorship from pharmaceutical companies. As a student from the University of Alberta who had attended the conference as a representative from Canada said:

> One of the main points that someone brought up in terms of potential passing a resolution was that in a lot of other countries like lower income countries? pharmaceutical companies are often an essential source of funding for medical student events and they don't necessarily have the luxury, say of us in Canada, of being able to approach other corporations or governments or medical students or faculties of medicine for support. And so that would be a barrier to more low income countries in general assemblies. And then there were just some beefs about the wording and things like that. The Americans were doing a very American-style and it was very direct - stating their position - and in IFMSA they are little more gentle as a rule.

Ultimately the motion was not successful. The student who conveyed this story helped to organise a later meeting of the IFMSA in Montreal in 2010. IFMSA meetings are funded by the host country, so the Canadian organisers were comprised of CFMS and its Quebec component, Fédération des étudiants et des étudiantes en médecine du Canada, and decided they would host the meeting without any industry funding. Obtaining funding for this meeting was a challenge without industry support, particularly in the context of a recession.

Conclusion

These findings demonstrate that when students have an avenue to express their dissent regarding industry influence, they feel more confident voicing their objections. This confidence became very relevant in a clinic environment where students had to negotiate the influence of industry on an everyday basis. In this regard, Becker's work on medical student culture is relevant, both in that it attends to the conflicted position that medical students are in when they enter the clinic (negotiating how to retain their own values amidst a quite intense hierarchical structure), and in that the power relationship between student and faculty shapes the students' ability to express their ideals, but not completely. To clarify on the latter point, Becker and colleagues finish their work with the following statement:

> To attempt to change human conduct by manipulating institutional practices thus requires of the innovator the courage and strength to resist conservative pressure, the wisdom to foresee the consequences of his actions, and the resiliency to meet the new problems generated by the ramified effects of his actions (1961: 443).

These words perhaps foreshadowed not only a context in which medical education has been increasingly influenced by a powerful for-profit industry but also a context in which

students have honed those idealistic tendencies into an influential student-led movement in the United States. In Canada, where this movement has not taken place in a substantial way, we see the vestiges of that entrenched power relationship between student and teacher. In fact, this power relationship is still a prominent feature of medical education in the United States as well. But perhaps the seeds of Becker and colleagues' criteria -courage, strength, wisdom and resilience- are germinating in a generation of doctors that cannot accept the way in which medicine is being influence by the profit-motive of the pharmaceutical industry. This finds expression in the optimism that members of the Pharmfree campaign exuded regarding their potential to impact medical education. I suggest that those qualities are developed in the course of struggle.

Students who were engaged with the Pharmfree campaign saw the weaknesses involved with the removal of 'Conflict of Interest' through their scorecard campaign. Essentially in removing industry influence by banning gifts and lunches, and even by having lecturers disclose their conflict of interest, they were not addressing the more subtle aspects of industry influence in the pre-clinical years, leading to bewilderment in the clinical years where the purview of their efforts regarding COI had been limited; drug reps were everywhere. Thus they turned to an educational campaign to have the matter of industry discussed in the curriculum. Clearly there is work to be done in this area, partly because of the very sparse and uneven existing curricula on industry influence, and partly because of the movement's need to wrestle with what they mean by "Pharmfree." They appear to be at a crossroads about whether to declare that they are against pharmaceutical industry influence in medical education in all forms, or accept

that they cannot control its influence in some areas, particularly when it comes to medical research. They appear to be leaning towards the latter. Students involved with putting together the CFMS position on industry influence appear to have accepted industry influence as inevitable in some respects. I gathered, from a couple of the interviews, that AMSA has run into problems with the idea of being 'Pharmfree' when they partner with physician organisations, who see their optimism as naïve, and encourage them to accept the inevitability of industry influence, particularly in research. I cannot attest to the accuracy of this perception but will note that these students are indeed at a crossroads, where they can decide to accept or refute that inevitability.

I suggest that a primary strength of the Pharmfree movement is that it is student-led. As outlined in previous chapters, the values informing many of these students are influenced by a notion that medicine should not be driven by profit. The confidence that these students had about their ability to wrestle with the profit-motive in medicine and fundamentally change medical education partly came from their experiences of actually changing things. Sometimes these changes appeared to be quite minor – covering up industry logos with Pharmfree stickers or adding a few key lines to their school's policy on conflict of interest. But in the very act of making any change, these students were engaging in the process of shaping medical education and taking ownership of their successes and their limitations. They exercised considerable agency and thus gained experience expressing their own desires about medical education. Their ability to retain this agency, to draw from their 'idealistic' notions of medicine, has the potential to inspire an even broader movement (reaching Canada, for instance) that can engage comprehensively with and possibly challenge the inevitability of profit in medicine.

These experiences that they have had in identifying a problem and working to come up with solution – the activist curriculum – has the potential to act as a groundwork for their future work as physicians. In the previous chapter a participant suggested that once students have been 'socialised' to accept industry influence in medicine it is difficult to convince them otherwise because they feel invested in defending it. This could perhaps be the case for students who have actively resisted industry as well. Once they are invested in this critical stance, they may be more apt to extend that criticism into their work throughout their career because they are invested.

Chapter Eight: Uncertain Solutions: Student Struggles with Evidence-Based Medicine

Clinical uncertainty is a key theme of sociological literature on medical education. Renee Fox's classic work on medical uncertainty starting in the 1950s[25] represents medical knowledge as inherently uncertain because of the impossibility of mastering the whole body of medical knowledge, gaps and limitations of medical knowledge and skill, gaps and limitations of effectiveness, difficulties distinguishing between personal ignorance and ineptitude, and the mysteries of pain, illness, suffering and death (Fox 2003). She thought that learning to cope with uncertainty was part of medical training. For the participants of this study, while challenging the presense of pharmaceutical industry sponsored gifts and lunches was fairly straightforward, many acknowledged that industry influence extended to the very research informing medical practice. The participants of this study were uncomfortable with industry's role in supporting and conducting medical research, and this led to uncertainty about the evidence informing clinical decision-making. The pharmaceutical industry's influence in medical research added a new dimension to Fox's classic uncertainty for these medicals students.

Evidence-based medicine (EBM) was adopted, particularly by the Pharmfree campaign as a strategic measure against uncertainty – a check against bias. This effort to promote EBM as a solution to industry influence in clinical practice was in some ways a rhetorical move on the part of Pharmfree activists, as well as some Canadian students. They used concepts from EBM to argue that the best evidence is not tainted by the pharmaceutical industry's interests. They were creating a particular meaning for

[25] Fox, Renee C. 1957. "Training for Uncertainty" in The Student Physician. R.K. Merton Ed Fox's work was about the socialization of medical confidence – doctors learn to manage the limitations of medicine. Training for uncertainty creates a professional attitude of objective expertise and detached concern.

EBM which addressed their uncertainty about evidence. They put faith in EBM as a practice to effectively evaluate industry bias in research and thus address its affect on clinical practice. The questions I asked to participants of this study regarding EBM were intended to uncover what they meant by EBM, whether they had been exposed to arguments and debates about its merits or shortcomings, and how they understood its potential in relation to pharmaceutical industry influence.

The Pharmfree website features the slogan "Promoting Evidence-Based Prescribing, Pharmaceutical Innovation and Access to Medicines" and defines EBM as the "conscientious, explicit and judicious use of the current best evidence in clinical care," which is a direct quote from Sackett. Importantly, the next sentence in their description of EBM is: "Information used by physicians in making clinical decisions should be comprehensive, transparent in its methodology and results, and independent from institutions and individuals with financial interest in physician prescribing" (AMSA 2013). The participants of this study who were active with Pharmfree were engaged in a project of defining EBM as a solution to the problems with industry influence in medicine. In some ways, the various ways that they use the term are confusing – it appears to refer to different things at different times. I will suggest that this reflects a dialogue within the Pharmfree movement about how to define EBM as practice to address industry bias. They want to expand the definition of EBM. Thus the understanding of what it is, its limitations and history are in transition. These participants as engaged in a process to create a new meaning for EBM. Participants are expanding on the understanding of EBM offered by their professors in the classroom to expose

some of the problems with industry funded research and create a solution for addressing uncertainty about the sources of medical evidence.

These participants from Pharmfree have encountered EBM in their medical curricula, where it is presented as the use of the 'best' evidence in clinical care. They have made a decision to define the best evidence as evidence that is free of industry bias, for the purposes of the campaign. In this way, EBM acts as a rhetorical device to push lecturers, Deans, preceptors and regulators to acknowledge the bias of industry influence in research and address it publicly. There are some contradictions inherent in using the concept of EBM this way, which some participants acknowledged, explored below.

The Pharmfree discourse reflects a wider movement amongst physicians. Other organisations of medical professionals that are critical of the pharmaceutical industry also advocate evidence-based medicine as a solution: "No Free Lunch," a group of health care providers opposed to pharmaceutical promotion influencing clinical practices, say their mission "is to encourage health care providers to practice medicine on the basis of scientific evidence rather than on the basis of pharmaceutical promotion" (No Free Lunch 2013). PharmedOut is a Georgetown University Medical Center project that "advances evidence-based prescribing and educates healthcare professionals about pharmaceutical marketing practices" (PharmedOut 2013). The Therapeutics Initiative in Canada bears the slogan "Evidence-based Drug Therapy" (Therapeutics Initiative 2013). These other organisations also indicate that EBM is a solution to industry-biased research.

I wanted to understand how EBM was used within the Pharmfree movement as a solution to industry influence and whether EBM was used in a similar way amongst Canadian students who are critical of industry influence. In this investigation I will consider how EBM is taken up as a political movement to oppose the commercialisation of medicine. In this respect I am drawing on the work of Catherine Pope (2003) who argues that EBM is a social movement to ensure that a particular (explicit) form of evidence is incorporated into medicine – epitomised by the randomised controlled trial (269). Pope traces the historical trajectory of EBM while also demonstrating its continued contradictions through empirical work. Pope uses a "social movements perspective," rarely applied to medicine, to "highlight areas of contested power" (2003: 268).

There is a small body of empirical data on EBM and medical education. Timmermans and Chawla present empirical evidence that EBM has not had a revolutionary impact on medicine (2009). They note the barriers to actually practicing EBM in the clinic: logistical barriers of infrastructure and personnel, cognitive barriers in the volume of literature pertaining to medical outcomes, and an uneven evidence-base. While some forms of uncertainty in medical decision-making have been addressed, new sources of uncertainty have arisen (152). Timmermans and Angell (2001) interviewed 17 pediatric residents in two residency programs and found that residents interpret EBM in varying ways to match their work practices. The residents said practicing EBM implied coming up with the best answer to a clinical diagnostic or treatment question. "Evidence-based medicine offers the resident a *written rationale for patient decisions* and this justification is viewed as an alternative to choosing treatments based on

anecdotal evidence and personal experience" (345). The researchers categorise participants into what they call "librarians," who consult the literature, and "researchers," who evaluate it critically. Eleven were labeled "librarians," who expanded the source material that qualifies for EBM (any published resource, including 'cheat books' textbooks, guidelines, review articles, manuals – pragmatic reliance on literature to quickly solve the dilemma at hand.) Six were labeled "researchers," who actively evaluated and interpreted the literature (looked at statistical criteria as the standard for evaluating recommendations – struggled to make literature searches part of their daily practice – used databases like PubMed, OVID, Cochrane Library, Medline). Residents talked about various aspects of how uncertainty entered into their use of evidence: they were uncomfortable about their ability to search for primary review articles; they were doubtful about their abilities to effectively evaluate a primary research article; and they questioned the interests behind conducting studies and expressed suspicion about effects of economic incentives on the quality of medical knowledge (349). The authors introduce their concept of "evidence-based clinical judgment," which is not just 'evidence' or 'experience,' but a mixture of the two, "the mixture of skills and uncertainties grounded in medical knowledge" (Timmermans and Angell 2001: 354). It is an evolving process, according to Timmermans and Angell, who challenge the sociological literature to consider uncertainty generally as not simply a step from uncertainty to control but as a process of gaining expertise.

More empirical work on EBM is needed to understand how it is produced in different contexts. The knowledge that is produced through the practice of EBM is contingent and dynamic. Mykhalovskiy and Weir (2004) call for more empirical evidence

on EBM that specifically addresses it as a knowledge relation. They criticise the political economy approach to evidence-based medicine arguing that it is pitched at a high level of abstraction and that it does not recognise the relationship between the exercise of power and the organisation of formal discourses of knowledge (2004: 1061). There is certainly a need for further theorizing to understand the particular way in which the use of EBM manifests itself in different contexts. While EBM has been used by neoliberal rationalisation and health-care management efforts for cost-control, regulation and streamlining, those are not the original justifications for this movement. Ultimately, Mykhalovskiy and Weir argue that EBM "is not the power of no; it operates through incitement rather than oppression" (2004: 1063). This Foucauldian analysis suggests that "evidence-based decision making is not a fixed relation but a portable mechanics that is remade as it traverses work forms and intersects with differing professional cultures" (Mykhalovskiy and Weir 2004: 1067). They encourage empirically-based research that attends to EBM as a knowledge relation in its local and translocal dimensions. My analysis seeks to address this call to consider EBM as a knowledge relation but does also draw on political economy to understand how EBM has been appropriated in the context of neoliberalism and how it is being taken up by medical students to respond to the role of industry in both medial education and medical research.

Mykhalovskiy's (2003) empirical work on EBM in an evidence-based newsletter for family physicians suggests that researchers "consider EBM as a constituent of decentralised relations of power that involve multiple techniques and strategies and that are tightly bound with the practices of authoritative knowledge" (334). This point is

important for understanding how the participants of my investigation use EBM rhetorically as a framework for doing research that is not influenced by industry. Participants express a desire to actively engage with evidence by evaluating the merit of clinical studies and by using good evidence in clinical decision-making. They also use the authoritative claims in some versions of EBM to accuracy, precision, and the 'best' clinical evidence.

Findings:

The way that participants defined and used the term evidence-based medicine was flexible. For some it was a philosophical approach to understanding medical evidence, for others it was a way to evaluate medical research, and for others it was an approach to clinical decision-making. In the Pharmfree campaign, EBM was a way to evaluate evidence to determine whether it had been influenced by pharmaceutical industry interests. Participants from the Pharmfree campaign talk about EBM as a way to evaluate industry bias in medical research. They are concerned about its influence in their practice and this produced uncertainty. Ultimately for Pharmfree, EBM acts as a rhetorical device to make the argument that the best evidence is not biased by industry influence. In this way they create a particular meaning for EBM. There are some contradictions inherent in this meaning, and some students wrestle with these contradictions in an effort to clarify their overall intent. Canadian students do not do this in the same way. They support EBM as an important tool to evaluate research but don't pose it as the solution to industry-biased research.

Defining Evidence-Based Medicine

I asked participants in this study to define EBM, because it's meaning changes depending on context and because I wanted to understand how their understanding of it is made relevant for an analysis of how the pharmaceutical industry influences medical research. Fifteen students from the U.S. and 15 from Canada provided a definition. For students in both countries, EBM was sometimes a type of evidence- the 'best,'-and sometimes a practice based on this type of evidence, and often it was both. There was not a significant difference between countries.

In most of the U.S. interviews students mentioned EBM before I asked about the definition, usually when describing the Pharmfree campaign. A few Canadian students mentioned EBM before I asked about it, but they were not the majority. In these Canadian interviews I asked if participants knew about Pharmfree (most did not) and if they were familiar with EBM (all were). The difference was that for students involved in Pharmfree, EBM was a primary feature of their resistance to industry influence. It was not this for Canadian students, but nevertheless when I raised it in relation to industry influence they immediately described its merits as a good practice for evaluating evidence, and many acknowledged that could help assess industry bias in research.

When I asked members of the Pharmfree campaign what they meant by EBM, a few described it in the context of the campaign, as a measure against bias. While some of the students in the U.S. were aware of how industry could bias even the 'evidence' in EBM, this often did not come forward in the definition. Most Canadian students saw EBM as a key part of modern medicine but did not pose it as a solution to industry bias in the same way as students from the Pharmfree movement and were more likely to

identify some weaknesses of the approach, such as the hierarchy of evidence favouring randomised controlled trials above other kinds of evidence.

Many participants referred to a version of Sackett's classic definition of EBM, "the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients" (Sackett et al. 1996)." Some participants even began answering the question of how they would define EBM by saying things like "Oh, I hate this question," as though they had studied it for a test and then provided an answer that resembled Sackett's definition. But the answers also extended beyond that definition or modified it.

Those who stressed the *type of evidence* that clinical decisions should be based upon, said things like:

> So you know, randomised, double-blinded, control studies, or meta-analyses, as opposed to just practicing according to what has been conventionally done, which is sort of the shift that's occurring in medicine (Participant from Ontario).

> Um, I guess is the promotion of justifying everything that we're doing in medicine based on um, studies that have been done, meta-analysis, or longitudinal studies, which I can't remember the best one right now, anyway [laughs] (Participant from Ontario)

> It's based on um studies that are conducted that don't manipulate data – that use the proper scientific method to find subjects to carry out the experiments and whatever data they find is all disclosed...Everything's out there so you as the consumer, as the doctor, as the reader, can make your own decision. Nobody's pushing you in one direction. You're like – here are all the data – you decide what you think (Participant from Connecticut).

These participants communicated an idea of the 'right' kind of research but the language they used to describe what that research is varied, from "randomised, double-blinded, control studies, or meta-analyses" to "meta-analysis, or longitudinal studies" to "studies that are conducted that don't manipulate data, that use the proper scientific

method." This was also the case in responses from participants who stressed the *practice of EBM*, or the way that evidence is used in clinical decision-making. They were the majority and said things like:

> So basically you have a question, like a clinical question, and we're just taught how to use scientific resources to answer that question and come to a conclusion and come to a treatment plan (Participants from Ontario, CAN)

and

> In simplest terms evidence-based medicine is the notion that when a physician makes a clinical decision, um, again in that fiduciary responsibility, there needs to be some rationale behind it. It doesn't necessarily mean that there needs to be an overwhelming body of peer reviewed literature out there. But there needs to be some sort of clear explanation as to why the doctor would choose one action versus to another... ultimately long story short, you want to have – you do want to be practicing science, and not uh, and not just witchcraft or haphazard guessing (Participant from California, U.S.).

For these students EBM is putting science into practice. Clearly these responses see the type of evidence and the practice of EBM as integrated. Some participants stressed this relationship explicitly. What is most interesting is the paradoxical assertion that there is a 'right' kind of evidence along with some very non-specific descriptions of what that kind of evidence is. They use positivist terminology, such as "true" and "objective" evidence:

> So anything that has been in a study objectively with all its biases laid out and shortcomings of the study and the analysis. Once it's laid out in an objective manner in a scientific process I think that's evidence-based medicine. So there is certain objectivity and you're not prescribing something because that's the tradition. You're basing your judgment on certain evidences (Participant from Oregon, U.S.).

> I guess I see it as a scientific way of ranking the possibility that something is true. And we should be basing our medical decision on evidence that we can be pretty sure is true and that we're not just guessing at (Participant from Ontario, CAN)

These definitions certainly employ Timmermans and Angell's 'evidence-based clinical judgment' in that they promote a marriage of practice and science. Like Timmermans

and Angell's participants, these participants did not have one unified idea of what evidence should be. In fact the most common feature of these definitions was not the description of what type of evidence was the best evidence, but that there is a type of evidence that is the best, the right evidence, and all of them were striving to use it. These responses also seem to reflect a particular understanding of EBM as a reliable and objective way to evaluate clinical evidence. Maya Goldenberg (2006) argues that this promise of objectivity essentially erases decades of work in the philosophy of science, problematising how 'evidence' is constructed. Social scientists have critiqued EBM with the post-positivist assertion that positivist empiricism does not yield neutral and universally valid conceptions of knowledge, but that knowledge is shaped by its creators (Goldenberg 2006, Raphael 2004). While in some cases participants did seem to replicate that version of EBM as objective, others were aware of the fact that even the 'best' evidence is a product of human interpretation.

Criticisms of Evidence-Based Medicine

I wanted to know if these students had been exposed to a critique of EBM, so I asked what they thought were the advantages and disadvantages of EBM. In terms of participants' discussion of the disadvantages, there was a remarkable difference between the criticisms of EBM from participants in the U.S. and Canada. In short, U.S. students focused on how EBM is limited pragmatically but ultimately a positive and necessary way to practice medicine. Canadian students were critical of some of the foundational assumptions of EBM – that the best evidence comes from randomized controlled trials (RCT) and that it is patient-centred.

The most consistent criticism of evidence-based medicine was that it could not

account for how every patient has individual needs and responds as an individual to treatment. This criticism perhaps speaks to the fact that EBM is an accessible rational defense for practicing medicine, but it comes into question when students actually confront the reality of clinical decision-making. A solidly researched study that meets the criteria for the 'best' evidence may not have a positive effect on every person. These responses were represented almost evenly between U.S. and Canadian participants, but Canadian students saw this as a central problem of evidence-based medicine, where U.S. students represented it more as a challenge of evidence-based medicine to be overcome.

Students in Canada were quicker to offer a critique of evidence-based medicine that they had clearly considered in the context of their medical education. One Canadian student said that it is a problem that evidence-based medicine is represented as a panacea –

> ...so the big disadvantage of evidence-based medicine is that people are now afraid to practice beyond where there's evidence, and patients that are atypical suffer for that because they're not getting care that perhaps a courageous surgeon or a courageous oncologist would provide them with.

Another Canadian student who was a resident doing post-graduate work said he felt that the disadvantage of EBM is that not every problem can be studied as a randomised controlled trial. He spoke about how the social determinants of health can often not be measured this way.

> Nobody has conducted a Randomised Controlled Trial of housing or food security or whatever it is. So people still question those connections. I mean, the other disadvantage of evidence-based medicine as it's practiced today is that it has become very regimented. And things that, we started to see today is that if you don't have an RCT for something it's not considered evidence. And there is also a discounting of what some people have called practice-based evidence, which is based on people's experiences and actually things in the field.

He said he had noticed a "backlash against the fundamentals of evidence-based medicine," where the hierarchy of evidence is being challenged. This student had a particularly complex understanding of EBM in comparison to the other participants. He was in a more advanced level of study and was doing work specifically on population health. Post-graduate students were more critical of EBM, perhaps because they had experience with doing research and had come up against some of its limitations. The student mention above was concerned about the hierarchy of evaluating the 'best' evidence in EBM.

Generally in the U.S. there was a lack of engagement with these broader questions of EBM as an approach to clinical research. A leading member of AMSA had never heard of a criticism of the foundational principles of EBM:

> K: Okay. Are you aware of any critiques of evidence-based medicine?
> Participant: Um, I guess well when people critique it are they critiquing it as a philosophy or is it more the way in which it's taught? Because I just-
> K: Um, what was the second…I'm just wondering if you've heard any critiques at all and what they were?
> Participant: Um, I'm not sure if I've heard any critiques you know on it as philosophy as a whole but I read a thing that maybe medical schools aren't doing the best job in teaching evidence-based medicine you know the way in which evidence-based medicine is addressed and critiques regarding that but not as a whole philosophy as a whole discipline.

This student touches on the different ways that EBM is approached by students. She recognises that EBM is on some level "a philosophy as a whole" but acknowledges that she is mainly familiar with how it is used pedagogically. Most participants from both the U.S. and Canada had not been exposed to a criticism of the philosophy behind or discipline of EBM. Their criticisms were framed as the contextual limits to their ability to practice EBM, and use it for the purposes they thought most pressing.

Most students who provided a criticism of EBM said it did not balance the 'art' and 'science' of medicine. Four from the U.S. and four from Canada said that it neglected the 'art,' or the clinical side of medicine. They said that physicians cannot only attend to the scientific evidence – they need to engage with the patient about care. Participants said:

> Medicine is an art and a science, and I'm sure you have heard that. And it's the art that gets neglected in our education because it is difficult to teach and students aren't interested in the art of medicine, they're interested in science. And the science is the evidence-based part. And that's the tragedy (Participant from Alberta).

> I think at one point you've read the articles and you've seen the signs, but in the end the patient is a person, right? So if statistically this product – this treatment works for 95 per cent and it's not working for your patient, you would check out the statistic and check out that at some point. Like if it's not working for you, well go with what your patient – like the patient in front of you, treat them as you know best. (Participant from Ontario)

These comments suggest that participants feel somewhat constrained by the limitations of finding the 'best evidence' for their clinical decisions, and that sometimes the best evidence, according to the research criteria, is not the most appropriate treatment for an individual patient.

A significant number of criticisms (two U.S. students and four Canadian students) focused on the quality of evidence in EBM. Canadian students talked about the ranking of evidence in EBM, where studies that meet the gold standard produce a certain kind of medical knowledge:

> So evidence-based medicine does not allow us to treat people, like chronic pain, like people with chronic pain issues, people with these hard to treat conditions that require multiple steps....Changing lifestyle, lowering salt, but these things don't get studies. And even if they do how do you, like how do you, how do you tell someone like, 'oh, go and lose weight.' Like, that's not an effective intervention. So it's just more difficult to study and its more difficult to standardise.

> Then we default to the evidence we know, which is easier, which is Pharma (Participant from Alberta)

Another Canadian student said that companies only fund studies that have marketable outcomes, so some diseases are neglected because there is no market for them. The U.S. students that criticised the quality of evidence in EBM focused on the extent to which the study had actually met the gold standard. Four U.S. students acknowledged that it was possible for bias to enter into the studies they considered 'evidence-based,' but at the same time wanted to put some 'faith' in that bias, and be reassured by the fact that 'striving' for unbiased information was better than not doing so:

> Right. Ya I think it's a little naïve to believe that evidence-based medicine necessarily is wholly objective – I mean that's a philosophical argument – if there you know, one truth or if anything is wholly objective. But I think that argument is actually largely moot, it doesn't matter if there is an objective truth – it matters that we're striving for it. And so when we see an inherent risk and we're able to remove it as a factor – as an influencing factor that I think it's our responsibility to do so...Remove the marketing agenda from that and I suspect we'll get a pure form of medicine that will reinvigorate the public's trust in medicine and also probably lead to a lot of better decision-making – or at least a lot more honest decision-making. (California, U.S.)

This participant talks about EBM as a method to "remove the marketing agenda" from research. Interestingly, she uses the language of "faith," as does the participant in the following quotation:

> So a lot of it is kind of taking the science, it's kind of an ironic thing, is taking the science on faith and just saying that because they did this trial it will work. But its true there is bias in any research and there is bias in any large study. So yes I understand those critiques but I in this stage of my education don't really know what to do about that [laughs] (Florida, U.S.).

These students are aware of how bias can enter into any research, but use the language of faith to suggest that EBM can point them in the right direction. The bias of

the scientific method is better than any other kind of bias, like intuition, tradition, or marketing.

Industry and Evidence

I was interested in whether participants were aware of the body of literature suggesting that evidence is influenced by industry. Many had not heard of these criticisms, even though they appear briefly in the literature produced by AMSA. When I raised the question of whether there was any difference between industry produced research and the body of evidence considered to be 'evidence-based medicine', they grappled with the possible contradictions of that dynamic. I would ask "can industry do evidence-based medicine?" or "Do you see EBM as distinct from evidence that is funded by the pharmaceutical industry?" The role of industry in influencing the 'evidence-base' is explained quite clearly in the following paragraph, which is on the second page of AMSA's publication, "Evidence and Recommendations for a Model Pharmfree Curriculum:"

> Industry has influenced the practice of medicine through traditional advertising, manipulation of the evidence base for pharmaceuticals and devices, and by more subtle means of promotion such as showing gifts, money, and lucrative contracts on physicians, who have frequently come to accept these benefits as a well-deserved right.

One of the five "curricular competencies" they seek to implement at medical schools across the country is "Determining Drug and Device Safety and Efficacy," where the competency would be to "critically evaluate clinical trial design and results, and describe the effects of publication bias and conflict of interest on available safety and efficacy data" (AMSA 2013). AMSA notes that regulatory agencies and peer-reviewed research studies are the foundation of evidence-based prescribing, and at the same time write

"Yet, these seemingly objective sources (are? Sic) also subject to bias, both intentional and unintended, that alter perception of the safety and efficacy of drugs and devices." Thus they acknowledge that students should understand the importance of skepticism, know how conflict of interest and funding source can impact clinical trial findings, know about publication bias and ghost writing, and also know how to find independent sources of drug information and critical reviews. This material demonstrates a sophisticated engagement with the literature mentioned above by Lexchin (2003; 2010), De Vries and Lemmens (2006), and Abraham (2007). It reveals that the organisation acknowledges industry's participation in constructing the 'evidence' of evidence-based medicine. While the rest of the literature from the campaign stresses the importance of EBM, this particular document indicates that some of the participants in AMSA are in the process of creating a particular meaning for EBM, as a framework for judging the extent of industry bias in clinical evidence, and they are doing so quite consciously.

Most of the Canadian students did not mention EBM as a solution to industry influence but did seem to adhere to this notion that the 'evidence' that would be considered EBM is 'more unbiased' than evidence influenced by industry. They said they supported EBM because it provides a systemic way of evaluating research, attempts to make analysis applicable to patients, encourages questions about the funding of a study and its particular bias, and offers a method to critically appraise good and bad research. While students in Canada were also exposed to EBM training in medical school and believed that it represented a way to practice medicine based on evidence, they were more critical of the assumptions of EBM. This could be because of the content of their education. Some of the founding members of the movement, such

as Gordon Guyatt, continue to educate medical students about EBM in Canada. Guyatt writes critically about the drug industry (Guyatt et. al 2010, Molloy et al. 2002) and problematises the fact that the body of research that comprises EBM can be influenced by industry bias. For instance, he acknowledges that panels that make decisions on practice guidelines that are considered evidence-based are comprised of individuals who have various conflicts of interest (Guyatt et al. 2010). He suggests, along with other colleagues, that a person's conflict of interest can impair their ability to evaluate the quality of evidence impartially. Some of the participants of my study went to McMaster University and were taught by Guyatt. He also has a relationship with Students for Medicare and has spoken at their meetings. Thus it is possible that students in Canada were exposed to a critical perspective on EBM and were engaged in a discussion about its advantages and disadvantages. Many fully supported EBM, but this critical influence might have led them to be more reticent about putting it forth as a solution to industry bias. This could be because Canadian students did not have an organised campaign addressing industry influence.

When participants from both the U.S. and Canada were asked to reflect upon whether the research produced by industry could be considered "evidence-based medicine", they either stressed that the two were distinct or they talked about how industry conducts research that is within the pool of evidence-based medicine, but would not be considered good, because it is biased. Some thought that this was not always easy to detect; there were many sources of imperceptible bias in research, from the kinds of questions that are asked to the sampling methods. A few noted that it was

important to distinguish 'good and bad' research, and that it was a problem that they did not learn that skill in medical school.

Some participants believed that evidence influenced by industry bias cannot really be considered 'evidence-based medicine.' Originators of EBM have stressed that it is a *practice,* rather than a particular body of evidence, but importantly it is a practice of integrating the "best research" with clinical expertise and patient values (Sackett et al.2000). These students seem to argue that research produced by industry would not be considered the best research:

> Um, so I think um, the best quality evidence is is ah, ah ah an analysis, a metaanalysis of all the studies that are out there about a certain question. And that meta-analysis must be conducted by someone who is unbiased by pharmaceutical influence and so they consider the studies that were done by pharma and so long as they meet certain criteria and that the methods are valid then we can accept that as part of the evidence. (Participant from Ottawa).
>
> [Industry-funded studies are] sort of actually grade negative one. You want to avoid it because their job would be to use misinformation deliberately in order to convince you so the influence of pharmaceutical companies in the classroom is really uh, is really relevant through the lens of evidence-based medicine for me because it really doesn't belong in the educational environment (Participant from Oregon).
>
> Um, ya, it is different because it doesn't – it doesn't go through the same I think peer review process. Although there is a logo that we've been told to look for – I sort of forget what they're called. But there is a peer review system for the publication of the pharmaceutical companies and if they're peer reviewed by this organisation, which is an impartial organisation, then the logo is there because its sort of a more trustworthy than something that doesn't have that logo. But even then it doesn't beat like the – I don't know – it's probably just the negative bias that we have against pharma. I would feel more comfortable reading it in a scientific journal. No matter who it's been approved by – if it comes out from a pharmaceutical company. And it's just sort of negative training that we've received about that – and you know what? I don't mind it. I'd rather be more on the wary side than jump head first into the pharma literature" (Participant from Ottawa, CAN).
>
> Evidence-based medicine is ... is .. research...is 100 per cent free of industry influence. In the very first question of how pervasive is industry influence – I think

> it's so pervasive that there is like an asterix when we use the phrase evidence-based medicine because I think there is far more of it's influenced than we actually know. ...No one asks, 'let's do a study to see if Aspirin can be used in heart disease or if Aspirin can be used in pain relief' because Aspirin is 2 cents a pill. No one deems that question important enough and no one puts the money behind the study to make that study ever happen, whereas any new little pill that a drug company wants to promote – immediately that's a relevant question. (Participant from North Carolina, U.S.).

Later in the same interview this student said he totally endorsed EBM as "where we need to be," but he only considered evidence to be in the category of the best evidence when he was certain that it was not biased by industry. In the above quotes participants articulate a difference between research that is done by industry, and research that is considered 'evidence-based' presumably according to the criteria of "conscientious, explicit and judicious use of current best evidence." These participants insinuated that some research biased by industry would not meet this standard and thus would not be considered evidence-based. Others suggested that all research is comprised of evidence, and EBM is a tool for measuring the quality of that evidence.

The participants who described EBM as a practice of evaluating research noted that all research, regardless of how it is funded, and who conducts it, would be evaluated based on the same criteria. Their caveat with respect to industry influence was that this process needs to consider who funds research and how that funding has an impact on the quality of evidence.

> Just because something is called evidence-based medicine doesn't necessarily mean that it's like, unbiased. I guess there are many different kinds of biases and you know research that is produced by a drug company have been biased in different ways and you can like, so I guess in general I think that just just um being realistic that industry is going to fund research and they're going to do their own research – I don't necessarily think we should say they can't do that – cause I think they're just going to no matter what. Um, but I think that we have to be very critical of any research that comes out of the industry and look at it with a very – you know under a magnifying glass just like we would with any other

> study, and know, and take, take their conclusions from the study with a grain of salt um just like I think you would if you knew that you know a researcher had a very particular opinion about something and then did a study on it. You would also take that fact into your decision about how to interpret that study (Participant from Oregon).
>
> I think obviously when a pharmaceutical company is testing on drugs they have huge financial gains to say that it works? and I think anyone who has worked in research – you know, I did four years of research in undergrad – you can manipulate data to look a certain way – it's not that difficult – it is a matter – if you have a conflict of interests it really does diminish the quality of your research (Participant from Ontario)
>
> As soon as you look at studies that are funded by drug companies you never really know and no physician has the time to sit down and read through and figure out how the bias is input or to seek through and find which studies were published (Participant from Alberta)
>
> But really I think you have to evaluate the quality of the research you are looking at, and there could be influences, like a study could be funded by the pharmaceutical industry but be happening at the University. So I think it's hard to say, really. How they're really involving themselves in all the research that is going on (Participant from Ontario).

In the comments above, participants argue that industry influence can creep in anywhere in the research process, and this leads them to be more skeptical of clinical research in general. These students struggle with the relationship between what is meant by EBM, and the influence of industry on research. A few participants tried to clarify how industry bias was being introduced as a key feature of evaluating evidence by distinguishing between good and bad research.

> I think that well, anything that's pharmaceutical will have inherent bias. Having said that, I do think, it is possible for a pharmaceutical company to create good, a good study that is evidence-based medicine that is well controlled. Um, so in that sense I guess there is good evidence-based medicine and there's bad evidence-based medicine? And I feel pharmaceutical is kind of independent of that? But at the same time it does have an inherent bias? So I guess it's just something that really when reading through their papers you really have to be concerned about? So yeah I do see them as, I think pharmaceuticals can certainly be evidence-based and well controlled and good research (Participant from Newfoundland).

> So evidence-based medicine is the research produced by pharma, its part of it, it's the whole literature. Not everything in the literature is good. That's my understanding. It's not one or the other. Evidence-based medicine is more than a body of literature it's a process by which I assess information. So if I'm doing good evidence-based medicine I would look at the articles and recognise which are inferior and low quality and discard them and look for articles of high quality. So the medical letter is a particular evidence-based review of drugs (Participant from New Mexico, U.S.).

And another participant, who was from Alberta, said it is important to take funding into account when considered any evidence:

> I think a lot of good studies do come out of pharmaceutical funded research. They're published in reputable journals. One way to get around the biases to declare where your funding comes from.

Several of these students stressed the fact that they did not get enough training about how to read data and investigate for industry bias in order to understand whether a research study had been influenced by industry. For AMSA, this concern has launched the Pharmfree Curriculum. But training was an issue for everyone.

What seems to emerge from above is a fair degree of uncertainty – a theme in the sociology of medical education. Fox, who has spent her career theorising about medical uncertainty, finds it notable that U.S. physicians are experiencing and voicing a lack of certainty in response to "the organisational and financial, as well as the scientific and clinical, changes taking place in medicine" (2002: 237). She criticises EBM for a narrow empiricist positivism that is a threat to clinical expertise; suggesting that it has actually increased uncertainty despite its promise to do the opposite (2002). The participants of this study, particularly from Pharmfree, did express uncertainty but this was not tied to EBM. Rather, they identified the problem as the suspect source of clinical research. With respect to EBM, some feel that they just haven't gotten it right yet – they needed to know more about it before they could use it properly for the purpose of

weeding out bad evidence. One leading member of the campaign tried to describe the goals of the Pharmfree appeal to EBM:

> So I think you know, what we were thinking, we wanted the goals of the campaign to be, [EBM] seemed like an obvious one because we don't think pharmaceutical companies are bad or evil um and we're not just saying that we should not talk to drug reps just for the sake of not talking to them it's because the larger goal is that we want to um, provide the best and most effective and most cost effective treatment to patients that we can. Um and that's kind of what we're advocating for. So part of that is that means we want doctors to um base their decisions on the best evidence, not necessarily based on marketing of companies that make the drug that is trying to get people to buy it or get people to use it cause that's not that's not what medicine is about. We're about – we're not about profit, we're about taking care of patients, so um that's our obligation and so um I guess that's uh, yeah. That's it (Participant from Oregon, U.S.)

This participant suggests that the purpose of the campaign is to find a way for doctors to treat patients based on evidence that is not influenced by marketing. They were in a process of defining EBM as something that could offer some certainty.

Perfecting EBM

Participants from the U.S. were adamant that they needed the skills to be able to determine what is good research and what is bad research on the basis of the extent of industry bias. In other words, good research is free of industry bias, whereas bad research is driven by this bias. Pharmfree participants felt that training in how to practice EBM was an integral part of curricular reform. I asked a student who was central to the campaign on curricular reform why EBM was one of the campaign goals – particularly how would it improve the curriculum. She answered:

> Um, I guess it wouldn't – it's not really about improving the curriculum but I think it's an essential component because I think that when we – when we get trained as physicians and we get out there, interactions will happen between doctors and pharmaceutical representatives and you kind of need to understand how to look at data and how to um think sort of for yourself you know based on evidence rather than some representative just telling you based on marketing – you need to make that clear distinction for yourself. And I think it plays a big role in what

> you prescribe for your patients. So you know not just for your educational purposes but it's affecting the health of the people you are taking care of so I think that's why it's important.

She agrees that most schools have curriculum on EBM, but that it is not focused on COI.

> Participant: And I think we try to make that distinction. Because there seems to be some schools who [?] evidence-based medicine without getting into the conflict issues. So that might be true for a good number of schools involved. Because I think EBM is sort of like standard curriculum for any first year medical student. You get your like little bit of [?] and a little bit just makes it - I'm guessing every school has – but the question is are they talking about conflict.
> K: So the way that you're talking about evidence-based medicine is different from the mainstream?
> Participant: Mainstream meaning?
> K: What every school has in the curriculum already.
> Participant: Ya, I think I, Ya, I sort of spoke more generally. I think when I say evidence-based medicine it obviously it has to involve the issue of conflict of interest. Um Ya because when you're calling it conflict of interest you're arguing that there should be no conflict of interest and your decisions as a clinician should be based on evidence. So – those two things naturally come together for me but across different schools it's probably not all the same.

The above transcript reveals some confusion on my part about what is meant by EBM in the context of the Pharmfree campaign. Later in this interview, the participant elaborated that the campaign encourages deans to implement lectures or discussions on conflict of interest in the curriculum. The words "evidence-based medicine" are not mentioned in this participant's communications with deans – but she assumed that the campaign for curriculum reform included EBM as a necessary component. Another leading member of the campaign said that her focus for curricular reform was to encourage medical schools to address how the drug approval process works, what drugs are treatments for which conditions, what happens when a drug goes to the FDA, what are the consequences of a physician having a relationship with industry, etc. Thus for these students there was a conflation of EBM and COI.

Students in Canada talked more about using EBM when practicing medicine, and about the limits of this practice for identifying industry bias. One student said she had some 'go to' journals like the *New England Journal of Medicine, the Canadian Medical Association Journal* and the *Cochrane Review*, to look up whatever practice or procedure she was learning about. She tried to read a lot and always find support from reputable journals for what she was doing. Another student was confident that if a drug representative was trying to sell him a particular medication, he would look at the paper and critically assess for control, design, sources of funding, sample size, and be able to determine whether they had "skewed the data." He said he had learned how to assess the quality of a study in medical school but not specifically how to assess the extent of industry bias in a study. Another student practicing as a resident in Ontario was also confident that he could critically assess for industry bias but ultimately could not just weed out all of the industry biased articles – this would limit the pool of credible research quite extensively in his estimation:

> I don't think anybody produces evidence-based medicine. I think evidence-based medicine is a means of practicing medicine or making decisions. They produce evidence. And the challenge is in looking at the evidence critically to see the quality of it. And I would say that the classic answer to, you know, the original evidence-based medicine philosophy would be to be very critical of that evidence. The problem is that practically that is very hard. You know, when they are funding things. And almost every paper that you read in major journals will have a conflict of interest. They will even say, yes, this was funded by industry. Well, if you exclude all of that you are left with very little. In terms of major drug trials that are published in major journals quite interesting to look at. If you were to exclude those studies would you even be able to address things. It's very hard. And then only later, five or 10 years after our product comes out do we then have people conducting the post marketing studies that are so important. Our phase 4 studies very actually look and we see that, say, medications cause an increase of stroke and heart disease or things like that...(Participant from Ontario).

Some felt that they received training on EBM in medical school and that in some ways it

did address industry bias. A student from Ontario said:

> So instead of going to the obvious sample that you have in your cupboard, there are Canadian guidelines for asthma for example and those are evidence-based, so you go to those as opposed to whatever is in the cupboard...I think that's probably the underlying tone. It's basically teaching you good research tools to practice medicine for the best interests of your patients.

Another Canadian student said he learned about EBM in medical school but not in relation to the pharmaceutical industry prescribing – training was more focused on the ethical implications of EBM. A student practicing as a resident in Ontario agreed that his training on EBM did not go into depth about industry funding. He described it as:

> Looking at all the facets of evaluating a particular study. And one of them was the funding source. Now I just remember it being mentioned in a fairly cursory way. And I think it's a pretty complicated issue. So it's one thing to note that a study is funded by the maker of the drug but then what do you do with that information? How do you, how does that impact your interpretation of this large randomised controlled trial of 50,000 people. I mean maybe part of the reason that that wasn't explained is because it's not very clear how to do that. What to use that information for. It seems a bit extreme to discount every study that is funded by the pharmaceutical industry. But on the other hand I think it's important that people know that there are cases where pharmaceutical companies suppress negative studies and that goes back to the education. So you'd probably be in a better position to interpret the studies if you have more information about the influence of the pharmaceutical industry in medical research.

A student from British Columbia said "[EBM is] sort of something that they preach. You know you want to base your practices and the decisions you make based on the evidence." She had classes on EBM in her first year of medical school but they didn't deal with COI. A student from Manitoba said he had quite a few lectures about EBM, and was skeptical that it could always result in the best clinical practice. A student from Quebec said she finds it difficult to find out which studies are independent of industry bias - she wanted to know how to find information that is 'pure.'

> I'm a student and I'm pretty policitised and I don't know where to get the good information. I'm informed and I can't find it. What about students who aren't

> informed. In school we're not taught to go after the good information. We just say here are the facts and it's good to have guidelines but we don't have them. Even physicians don't have guidelines. There was actually an idea – for example whenever you're given something you should have disclosure."

Thus Canadian participants believed in the potential of EBM to help them discern biased from unbiased research, but felt their curriculum did not go into this. In this way students from Canada were similar to U.S. students, but what made them different was that they were not trying to actively intervene to create a kind of EBM that would address their concerns.

Addressing Uncertainty

In many ways the success of the Pharmfree campaign exposes the central tension of industry influence in medical education – that even if all of the trinkets were eliminated, and even if every lecturer disclosed her or his conflict of interest, industry would still influence medical knowledge through research. Members of the Pharmfree campaign were pressing up against this tension throughout their engagement with the campaign, unevenly acknowledging or alluding to a sense that the vast body of knowledge they were supposed to retain was in some way tainted. Their reaction to this was often filtered through the lens of EBM. EBM was a practice that could rescue the integrity of medical research, and medical practice, or it was a troubled practice that needed to be revised and corrected in order to meet its potential; either way, EBM was the solution, particularly for U.S. students. Canadian students also saw this potential in EBM, and accepted it as an important part of medical practice, but did not frame it as the solution in the same way. This is possibly because they had not seriously considered a solution to the implications of industry influence in medical research. They had not taken on the task of addressing industry influence in research as extensively as those involved with

Pharmfree. Another explanation is that their curriculum on EBM was perhaps qualitatively different from the curriculum in the U.S., leading them to have a more critical approach to it as a practice. But it is also important to note that some students were entirely supportive of EBM.

Participants from Pharmfree were producing a particular understanding of EBM in their attempts to use it to address conflict of interest, but ultimately there was disagreement within the Pharmfree movement about how critical they wanted to be of industry. Three leading members of the campaign offered explanations about where the Pharmfree campaign is headed, represented in the three following quotations from three women at different schools in Massachusetts:

> Um you know our goal isn't to eliminate the influence or eliminate interaction because I think that's impossible and there are good interactions that are happening in the area of research and whatnot. But I think you know, even going beyond industry it's making yourself a sort of sound clinician – that's sort of the hierarchical – I wouldn't say that you know training student in the same role could eliminate the influence because that's impossible but it will prepare you to interact in a proper way – in a way that doesn't compromise your clinical judgment.

For the participant above, industry presence in medical education is not inherently a problem – as long as clinical judgment is sound. The participant's quote below is similar, suggesting that pharmaceutical companies can fund research as long as the study is robust.

> K: So your primary concern is how robust a study is. Not who it's funded by. Participant: Who it is funded by is a component of it but it's definitely not a primary concern. There is a distrust of pharma companies funding studies. But it's more important for the disclosure to be apparent and for students to take that into account when they are making a judgment. There are robust studies from pharmaceutical companies – especially because they're partnered with researchers from universities with a more robust background. They don't want to give the impression that if it's funded by pharma you should say no.

The student below indicates that in a sense, she agrees with the above comments, that if she could evaluate a study herself, she could be more confident of determining whether it is reliable. But in the context of 'modern medicine,' this isn't possible.

> There's this whole body of research about non-drug, non-device treatments that, I don't know whether they work or not so I can't recommend them to patients. And then you have the other one- the other side of it – where even within sort of the drug treatments where sort of the way the study has been designed makes the treatment appear more effective than it actually is, so when I think, the sort of most taxing part for me on a day to day basis is like you can't just take, you can't just ask your supervising attending 'okay so what would be the best like, cholesterol treatment for this patient.' Like for instance like a lot of doctors prescribe Ezetimibe, which is a very expensive medication to lower cholesterol. However if you actually look at the studies there's no benefit in mortality to this [...] It makes it very hard as a student because you're tasked with like learning this endless pool of knowledge that is medicine, and on top of it you can't just trust what your attending says. You really. If I want to be sure that what I'm doing is right I need to look at the studies myself, which there's, in modern medicine there's just not enough time to do. So every day when I go to work I know that I'm going to do something that's not evidence-based, that I'm doing just because it's what medicine believes and medicine believes that because the pharmaceutical industry has been really good at promoting that message, so..."
> K: [pause] Oh that sounds stressful [both laugh].
> Participant: It is some days. Yes.

All three of these excerpts take for granted that industry is a part of medicine. But they deal with uncertainty in different ways. The first two suggest that industry influence is inevitable, even sometimes positive, and that training on EBM can help students avoid bias; they can "interact in a proper way" or take disclosure into account when making a judgment. This belief in EBM as the solution seemed to make the uncertainty of the source of clinical evidence manageable. For the latter participant, it was clear that she had less faith in the evidence, and this led to a fairly palpable uncertainty. When I asked her what she thought the solution to this dilemma was, she said "government needs to step up," meaning that the National Institutes for Health should fund studies about the questions the pharmaceutical industry will not study. Her attention to this more

structural dimension of how the evidence-base is produced is an important dimension to the question of EBM that the campaign has not formally explored.

EBM offered a way to address participants' uncertainty about industry influence in research; they felt it could help them produce and use knowledge that was not corrupted. In the era of corporate medicine, students appear even more uncertain about their footing. Not only will they have difficulty retaining all of the information they need to know. In the pursuit of better information, some feel they must be aware of a vast body of literature in order to do good clinical work. EBM seems to represent a solution to this uncertainty. Many felt that even if the practice of EBM is currently limited, it has the potential to solve the problem of bias in industry-funded research and allow them to manage the level of uncertainty they face when entering into the world of clinical decision-making.

Tensions in the EBM Solution

Students described EBM as a check on industry bias, but also in some ways acknowledged the extent to which industry had been a part of shaping medical evidence. This posed a dilemma for some who tried to address the tension. A recent body of literature demonstrates the limits of EBM as a solution to industry influence. Joel Lexchin's (2010) work demonstrates how biases are introduced through choice of comparator agents, multiple publication of positive trials and non-publication of negative trials, reinterpreting data submitted to regulatory agencies, discordance between results and conclusions, conflict-of-interest leading to more positive conclusions, ghostwriting and the use of "seeding" trials. In another publication Lexchin and colleagues (2003) found industry funded research was four times more likely to produce positive outcomes

compared to research with any other source of sponsorship. Raymond De Vries and Trudo Lemmens (2006) have studied the influence of pharmaceutical companies on the conduct and reporting of clinical trials, demonstrating that the industry shapes the design of a study, its conduct, and the interpretation of data, and further, engages in outright manipulation of research, selective publication of data and ghostwriting (2006: 2695). They state: "Industry influence on medical research blurs the line between the conduct of science and the marketing of drugs and devices, thereby undercutting the very foundation of EBM" (De Vries and Lemmens 2006: 2695). They conclude that EBM suffers from biases generated by funding and biases built into the way researchers perceive the world. Abraham (2007) outlines a political economy of evidence, noting that in the history of drug regulation almost no countries have required pharmaceutical firms to demonstrate that their new drugs are more efficacious than established therapies already on the market.[26] Manufacturers just have to provide substantial evidence of clinical efficacy – the FDA actually prefers placebo trials because they have a more clear-cut result (Abraham 2007). "This regulatory context suits the pharmaceutical industry," writes Abraham (2007: 44).

During interviews with participants I sought to understand whether they had been exposed to this literature. While some seemed to be aware of some of these ideas, particularly in their concerns about quality of the evidence, for the most part their criticisms of EBM were about the practical problems with implementing this practice in the clinic. These criticisms were in line with what Cohen, Stavri and Hersh (2004) identify as the key criticisms of EBM in the past decade: reliance on empiricism, narrow definition of evidence, lack of evidence of efficacy, limited usefulness for individual

[26] Abraham references Mrazek et al., 2004

patients, and threats to the autonomy of the doctor/patient relationship. The authors argue that the theory and practice of EBM must expand to include new methods of study design and integration, and must adapt to the needs of both patients and the health care system to provide patients with the best care at the lowest cost. They suggest that the decade of debating whether medicine should be ruled by 'evidence' could have been better spent discussing the best ways to incorporate evidence into the multi-faceted clinical decision making process (Cohen et al. 2004: 41). While critical of the debate over EBM, these authors don't suggest that it should be discarded altogether. In keeping with this perspective, participants suggested that EBM has not been perfected yet. A few Canadian students suggested that EBM had some inherent flaws, but most participants believed fully that it was an essential component of modern medicine, even if it needed some substantial revision.

I will suggest that one of the reasons medical students support EBM is that its presence in medical school curricula across the U.S. and Canada made it a readily available solution to the problems that they identify, and it has an authoritative power that they can draw on for credibility. EBM has been implemented extensively in medical education curricula (Timmermans and Chawla 2009). Education in EBM takes the form of journal clubs, faculty development and training in EBM, work groups, use of Internet and laptops in clinical settings, use of PDAs or, etc. All of the participants in my investigation had been exposed to mandatory EBM training as part of their medical education.

Clearly these students do not simply accept all of their medical training uncritically. As outlined in the previous chapter they are quite critical of the influence of

industry. But EBM has not been subject to the same level of critique, and in fact seems to offer a way to deal with unease over industry, particularly during the foray into the clinic. Just when students reach the point of their education that includes the quite daunting experience of being face to face with a patient who is in need of medical attention – in some cases a pressing material need – they are also confronted with the tangible pervasiveness of the industry, including representatives visiting, drug samples, pens, mugs, charts and notepads bearing industry logos. These students are upset by the presence of industry gifts. In outlining their values they acknowledged a concern that drugs produced for profit do not necessarily have the best outcomes for patients. That presence of industry is a stark reminder of the presence of industry in the very research informing their medical knowledge. At the same time, they know this cannot become a distraction. They must reconcile their discomfort with the gifts to attend to the urgency of bodies. They end up looking to science to help them cope. EBM is a framework that allows them to find answers that they hope will skirt the incipient influence of the gifts and make pressing clinical decisions in the interests of patients.

Participants appeared to need a strategy to help them avoid using clinical research that merely reflects the interests of the pharmaceutical industry. But as much as they defend EBM, they expand on its definition. They didn't only want a practice that could lead them to the best evidence; they wanted to find evidence that was not biased by the pharmaceutical industry's interest in profiting from drugs. Particularly students in Pharmfree saw that EBM had the potential to meet this need, and their campaign was organised to help mobilise that potential in the formal curriculum.

The Political Economy of EBM

While AMSA is very critical of market-based approaches to medicine, they do not address the argument from some social scientists that EBM is also tied into that market-based approach to health service delivery and health care. It is possible that the argument from political economists, that EBM is often used to justify resource allocation and control prescribing practices, does not resonate with the everyday experiences of medical students. EBM does not appear in this form – as a regulatory practice. These participants actively promote EBM training to address dilemmas they face in accessing knowledge about treatments. But it is perhaps the authoritative power of EBM that these students find useful in mobilizing it as a strategy to address industry influence in research.

In situating this study in the context of neoliberalism and the state's facilitation of closer relationships between education and the market, it is important to understand whether the interpretation of EBM that these participants offer suggests a departure from the hegemonic neoliberal conception of commercialised medicine. The answer to this question is complex. While the participants of Pharmfree are certainly critical of industry influence in medical education and research, they frame their response mainly within the context of medical professionalism and scientific integrity. They do not appear to address the structural forces that contribute to the relationship between industry and medicine. Furthermore, they suggest that the relationship between industry and medicine is inevitable.

I will suggest that in some ways the Pharmfree approach to EBM operates, much like COI, as a firewall between medicine and industry. There is an acceptance that industry has its place in medicine. There is also a resignation to the idea that industry

will do research and in some ways drive research interests. These participants seem to be arguing that if we have methods in place to mitigate the way that this interest could possibly affect treatment of patients, and that the problems with industry influence can be neutralised. Students were taking up some of the principles of EBM- to have clinical expertise informed by the best evidence- and mobilising this rhetoric as a tool to draw attention to industry bias in research. The pitfall of this approach is that it is well on its way help to reinforce industry's central role in shaping clinical evidence. The tensions arising from the use of EBM indicate that this approach will not comprehensively eliminate the bias of the market from medical practice. Some students seemed aware of this, but they were also perhaps aware of the fact that their movement was pushing forward the terrain of debate over what EBM means. It is possible that if students continue to address the tensions inherent in their use of EBM they will engage in a very productive and important discussion of EBM's potential and its limits, along with a discussion of other strategies to address the impact of industry influence in research.

To return to Pope's idea that EBM is a social movement to ensure that a particular form of evidence is incorporated into medicine, I suggest that the participants of this study were clearly engaged in such a movement. They wanted to ensure that the evaluation of industry bias in medical research was a key component of EBM and that it was incorporated into the curriculum as an additional element of the practice of EBM. Pope concludes from her empirical work that the EBM reform movement of the 1980s and 1990s asserted the dominance of a particular branch of science to the detriment of other vital components of medical knowledge, and sowed the seeds of its own opposition when its assumptions were not borne out in everyday local practices (2003:

279). In some ways the participants of the Pharmfree movement continue to emphasise a fairly positivist focus on the right kind of medical evidence where the RCT is the standard. In this way they could be extending a rather hegemonic notion of evidence that, as political economists have pointed out, fits well with a neoliberal framework because of its regulatory potential (Pope 2003: 272)[27]. But in other ways, the movement has the potential to shift this dominant ideology of the market as the best and most efficient way to manage clinical research. When participants address the tensions in their movement, they offer important insights about the potential of their movement to highlight the ways that the market is increasingly affecting medical evidence and clinical practice to the detriment of patient's health.

Conclusion

In this chapter I continue my effort to avoid portraying participants as passive or unwitting followers of a cultural phenomenon. I represent the fact that, quite the opposite, these participants have actively developed a campaign to offer EBM, which is defined differently by different actors, as a framework through which to avoid practicing medicine that is biased by industry. There are tensions in this use of EBM, because in some ways the production of medical evidence is deeply embedded in the market, in sometimes undetectable ways. Some participants were aware of that tension, and some were invested in using EBM as a rhetorical strategy to highlight the problems with industry influence and to find concrete solutions for addressing it in the curriculum. This does not mean that those participants were confused, or that they were "cultural dopes." In some cases it meant that they were wrestling with a contradiction in their effort to

[27] Pope points out that in the U.S. clinical guidelines were linked with private sector insurance and governmental cost containment strategies (Pope 2003: 272).

practice medicine that was free of industry bias in the context of industry influence – a challenging task, to say the least. Some seemed to have made a decision to speak quite adamantly about the benefits of evidence that is free of industry bias, and perhaps were quite consciously appropriating their curriculum on EBM, defining the 'best' evidence as free of industry bias. Many students alluded to the fact that they had learned about what EBM is as part of their formal curriculum, but the curriculum did not fully address the relationship between EBM and pharmaceutical industry influence in medical research. It was a strategy available for use, given its popularity; a means at hand to resist even as many understood its limitations.

I suggest that EBM is a troubled solution to the problem of industry bias in research, because increasingly industry shapes clinical research that is considered to be the best evidence. In Abraham's (2007) assessment of the ethical, commercial and political forces affecting clinical trial design, he refers to the "pharmaceutical knowledge production system" to describe how a pharmaceutical firm manages what knowledge from a clinical trial sees the light of day. This idea of the pharmaceutical knowledge production system needs to be extended to medical education, in order to address the ways in which the framework of university/industry partnerships has influenced the kind of knowledge that is produced in medical education. I suggest that one of the reasons these participants felt compelled to re-invigorate and transform EBM was that it is the only available solution they have to addressing their central dilemma with industry influence. Their dilemma is that they want to practice good medicine free from industry bias, but with the knowledge that industry bias is pervasive and has an impact on all of their knowledge. Some suggest that if EBM is perfected, and if accepted by the old

guard, it will effectively weed out industry influence to reveal the truest and most pure science. Many know that this is too simplistic. Some acknowledge the limitations of the RCT, for example, but then suggest that EBM should be expanded to value different types of data; some grapple with the fact that only research on the most lucrative drugs gets funding, thus many chronic conditions or preventative practices are under-researched and not considered to be the best evidence. But none of the participants then suggested that EBM was not the solution. Even those that acknowledged its limitations extensively, defended it. This is partly a product of the degree to which the partnership between industry and medicine has been accepted. There was an assumption that as long as industry is attempting to bias research, we will need a practice that can uncover that bias in order to find the best evidence. Very few participants entertained the possibility that industry should not fund or conduct research.

Chapter Nine: Conclusion

This qualitative inquiry has sought to create a dialogue between the considerable scholarship on the pharmaceutical industry from the fields of medicine and sociology. I have addressed a gap in the literature by providing a sociological analysis of pharmaceutical industry influence in medical education from the perspective of critical students. I have focused on medical student resistance to industry influence in order gain deeper insight into the following questions: how does the pharmaceutical industry influence medical education?; how do students develop a critical consciousness about the problems with this influence?; and how do students in both Canada and the U.S. exercise agency in resisting industry influence? To do this, I talked to participants about a component of their medical education that they found unsettling. I have identified some of their assumptions about what medical education should be, and what it currently is. These assumptions and interpretations, which are dynamic and contingent, acted as windows into the operation of medical education, the discourse of professionalism, the regulations on conflict of interest in medical education, the curriculum of medical education, and the ways that those relations are organised in the context of 'medical neoliberalism' and 'academic capitalism.' My findings shed light on how students exercise agency in this context.

In this concluding chapter I reflect on my primary arguments, synthesise the conclusions of my empirical work and identify theoretical implications of my observations with respect to this area of research. I furthermore highlight this study's limitations and provide direction for future research on this topic.

In this dissertation I argue that medical students demonstrate a considerable amount of agency in finding ways to resist the pervasive influence of the pharmaceutical industry in their education. Their consciousness about what the problem is and what they should to do to address it is informed by their practice, both in their experiences of the formal curriculum of medical education and an informal curriculum of the movement criticising industry influence. Students who had access to a student-led campaign with the resources and expertise to resist industry influence, primarily from the U.S. based AMSA, were more confident about their ability to address the hierarchies in medical education, and to transform some key structural components of medical school, namely, their school's policy on conflict of interest and curriculum on how to deal with industry influence as future doctors. Students who did not have access to such levels of organising, mainly participants from Canada, resisted primarily in isolation and did not have the same level of confidence as their U.S. counterparts about their ability to effect change. Many Canadian students were confident that faculty had addressed conflict of interest associated with the pharmaceutical industry at their school.

Most participants framed their resistance, which existed in various forms, within the confines of modern medicine: they looked to professional norms, popular texts by critical physicians, medical educators and scientists, and to various examples of regulatory legislation dealing with conflict of interest for guidance. These sources were a resource to students both in terms of their understanding of the problem and their efforts to organise opposition. These influences and the way that they are taken up by students have the potential to reinforce and perpetuate hegemonic ideas about medicine and industry, and their relationship: the biomedical model of understanding human bodies

and health; support for the 'partnership' between industry and medicine in medical education, research and practice; and encourage resignation to the supposed fact that industry influence in medicine is inevitable. While in some ways students have taken up hegemonic ideas about industry-university partnerships through their campaigns, these students have the potential to question and possibly challenge those hegemonic ideas. My findings demonstrate that one of their primary objections to industry lies in their belief that the profit-motive should not come before the needs of patients or the priorities of clinical research. This objection is quite oppositional to hegemonic ideas about the necessary interrelationship between industry and medicine, given that a primary motivation of industry is to make a profit. Thus participants were motivated by an objection that could possibly shift the discussion about industry influence to a discussion about the role of profit in medicine.

Empirical Findings

Based on my interview data, I outline the ways in which the wave of critical work about the pharmaceutical industry by physicians and medical educators has offered a framework for medical students to understand and problematise industry influence. The common theme in these works, which has been taken up by the Pharmfree campaign, is conflict of interest. While work within medicine to address conflict of interest is in many ways productive and important, I argue that it also reduces the complex interrelationships between various players in medicine and the pharmaceutical industry to an individual interaction between patient and physician, reproducing physician-industry relations as a professional matter, rather than a broader political matter. I outline the ways that students have been very influenced by popular literature on

professionalism and conflict of interest, and its associated literature of professionalism. When these students described their opposition to industry, they consistently talked about the fact that they opposed the role of profit in medicine, and were concerned that industry influence in profit was trumping the needs of patients. Participants' attention to this particular strain of the professionalism literature, which does not extensively address "profit" but does acknowledge the problems with the 'commercialisation' of medicine, is an important feature of the movements of students to address industry influence. They were tied to traditional professional norms, but also emphasised a more recent concern within the profession to address the context of commercial interests in medicine.

The conflict between student's interests and industry's interests was most present in the clinical portion of medical education. While students were quite adamant that industry should not be present in the lecture halls, they were more perplexed about its presence in the clinic, particularly when it came to making clinical decisions. This produced uncertainty about the application of evidence to clinical decision-making, which they attempted to resolve with the use of evidence-based medicine (EBM). EBM was adopted, particularly by the Pharmfree campaign as a strategic measure against uncertainty – a rhetorical move on the part of some of the Pharmfree activists. They used concepts from EBM to argue that the best evidence is not tainted by the pharmaceutical industry's interests. They were creating a particular meaning for EBM which addressed their uncertainty about evidence. Canadian students had not organised a campaign to offer EBM as a solution to industry bias, but in some ways supported the notion that it is a tool to evaluate the best evidence and evaluate the

implications of industry bias in research. I argued that just as COI policies and regulations were used as 'firewalls' between industry and medicine, EBM acted as a measure to mitigate the effects of industry bias in research. Although the way that students were giving meaning to EBM was insightful and has potential to open up important questions about the quality of research conducted by industry, it also has the potential to reinforce industry's integral participation in shaping medical evidence. The profit-motive of industry was in some ways neutralised by this evaluative measure that could judge good and bad evidence scientifically.

Theoretical Implications

This investigation drew primarily from political economy in order to understand the way that the experiences of medical students in contemporary 'commercialised' medical education fit with a logic informed by capitalist accumulation. Neoliberal initiatives promoting privatisation, commercialisation, deregulation and reregulation have been accommodated by medical professionals and university administrations in the creation of a medical education where industry appears to be inevitable from the perspective of medical students. For my theoretical reflections on student resistance I drew from the sociology of medicine, including Becker and colleagues' attention to medical students 'gripes' or complaints as an effort to understand their values and assumptions, Fox's work on uncertainty and subsequent efforts to revise and renew that discussion, and the critical literature on medical professionalism, because these ideas helped with an understanding of how students are engaged in a social process when attending medical school. I built upon these earlier works with an attention to student agency, and to how that agency is expressed in the context of neoliberalism. I draw connections between

student's experiences, the various texts and discourses organising the way that they understood industry influence, and capitalism.

These interviews indicate that within contemporary capitalism, agency is multilayered and complex, informed by hegemonic ideas which are perpetually in motion as they are challenged. The capitalist mode of functioning gained legitimacy in some texts and regulations that sought to problematise and address industry influence, but in fact helped to enshrine the integral presence of industry in medicine and education. Framing the problem of industry influence in medicine as a conflict of interest between physicians and industry represents both interests as valid and equal, reducing the power imbalance inherent within this dynamic and obscuring the fact that the interests of industry and those of physicians are intertwined and often the same. Capitalist accumulation inherently produces conflicts of interest in that public services such as education and medicine are re-oriented to meet the needs of investors, which are fundamentally rooted in the drive for profit. The word 'partnership' is an inaccurate depiction of the relationship between industry and medicine, but the pervasiveness of that apparent partnership in medical school created a context where it was difficult to think otherwise.

When participants looked to the framework of conflict of interest, they wrestled with the conflict between their own values and industry interests and attempted to reconcile these two forces. This reaction, an attempt at negotiation even amidst uneasiness, is a product of understanding the issue as simply two competing interests. Participants' efforts to accomplish this negotiation were full of tensions as they became aware of the degree to which industry and medicine are intertwined, and as they began

to understand their complicity. They appeared to be conflicted about how to manage industry influence. They were adamant about defending EBM as a solution to industry, and yet some recognised that even the most seemingly reliable evidence can be either conducted by or funded by industry, with industry interest embedded in sometimes imperceptible ways. They believed that there was no place for profit in medicine, and yet fully accepted that industry was a partner of medicine. While students from both the U.S. and Canada were working towards conflict of interest policies ridding the pre-clinical years of gifts, mandating that lecturers disclose conflicts, and developing curriculum addressing how to deal with industry influence, they accept that in some form, industry would be a fixture of their education. Many had accepted that profit has a role to play in medicine.

Participants' engagement with a movement to criticise industry influence was related to their consciousness about what the industry represented for medicine, and how it should be addressed. What students did, in the classroom, the clinic, and beyond, had an effect on how they thought about the relationship between industry and medicine. They certainly had ideas about what they thought medicine should be even before starting medical school and most of these students did not have to significantly re-imagine those ideals in the pre-clinical years because industry influence was hidden or mitigated by conflict of interest policies. When they entered the clinical portion of their education and had to both interact with industry and practice clinical decision-making, their ideas about industry influence shifted. Some tried to cope and negotiate, accept that industry was inevitable and work to find ways to practice the best medicine, often using EBM as a framework to address what they perceived as the bias of the market in

clinical research. Those who were more engaged with a social movement to resist industry influence, the activists who were doing classroom talks, petitioning, organising lunch-time sessions on industry influence and drafting conflict of interest policies, were more skeptical about industry's presence and less confident that they could avoid its influence. This produced uneasiness that was in some ways productive. Some thought through the contradictions and expressed a desire to address the structural components of medical education like funding for research. But even the most critical students stopped short of entertaining a medicine that was free of pharmaceutical industry influence. It is symbolically relevant that the very title "Pharmfree" is in question.

The purpose of this dissertation is to investigate a form of resistance and offer an analysis of the potentials and limitations of that resistance by situating it within the political and economic context. I offer some observations about the future of industry influence in medical education in order to be forthcoming about my stance on these potentials and limitations. I have argued that capitalism is the dominant mode of production and that this economic context has important implications for the way that our social structures are formed. The profit-motive in capitalism has influenced the definition of health and the organisation of medical care since industrialisation. But there is nothing linear or simple about this influence. There is no social structure without social actors, and social actors entertain conflicting and contradictory ideas about their own interpretations of the world around them and their actions within that world. Those actions and ideas are perpetually constrained by both dominant ideology and materiality. In medicine, there have been various movements to challenge hegemonic ideas about the body, health, drugs, treatments and preventions. Doctors have

registered discontent about the conditions of their work, from the approach to health as a business to the foundational assumptions of allopathic medicine. Ultimately my argument is that the forms of resistance I have investigated here have the potential to reinforce hegemonic ideas about medicine and industry, namely that they are 'partners,' but also have the potential to disrupt that dominant ideology by demonstrating how industry can have a detrimental impact on the care of patients, challenging the ability of the market to allocate resources equitably, and unmasking the problems inherent in medical research that is motivated by profit. In this sense, the Pharmfree movement is at a crossroads. Students in Canada are paying attention to that movement as the influence of industry becomes more apparent to them and the direction of Pharmfree can have quite a serious impact in the future of medicine.

I hope that these movements continue to wrestle with the problems of industry influence, and that they genuinely address whether they want to perpetuate the notion that industry is now an inevitable part of medicine. I would suggest that it is not inevitable, but that efforts to remove industry interests from medicine would not be undertaken successfully within the confines of the profession of medicine. This effort would have to be undertaken with other social actors within the health care system and beyond, and would have to address how the dominant models of understanding, practicing and delivering health care are rooted in capitalism. It would likely have to intersect with movements that resist capitalism. And this kind of project will likely not take place tomorrow. As a participant mentioned, it would take a "huge paradigm shift." But that shift must begin somewhere.

There is a debate over the strategies and tactics that would be involved in a possible separation of industry and medicine. For instance, Brody (2007) refers to the management strategy and the divestment strategy. In the former, physicians accept that industry and medicine have been and will continue to be interrelated and that the profession should manage relevant concerns and conflicts of interests that arise from that relationship. In the latter, the divestment strategy, physicians start with the assumption that they don't have to be connected with industry – the medical profession can disconnect from the pharmaceutical industry. He notes that the divestment strategy hasn't been explored in a comprehensive way. I will posit that it should be explored, and that this could be the beginning of a movement to address the foundations of the pharmaceutical knowledge production system.

These discussions of strategy speak to a more fundamental question of will. It is only when the people who practice medicine are convinced that it is possible to practice medicine without the influence of industry that they will begin to approach the possibilities of how to do it. My concern with the Pharmfree movement is that some of the participants are already resigned to industry's presence, even though they find it troubling. One theme of the literature in medicine about educating students on industry influence is that educators have to 'catch them early' with teaching interventions on conflict of interest because prescribing habits form early and then physicians become rather set in their ways, invested in defending industry's presence in medicine. If this is indeed the case, it could possibly also be true for resistance. The students who had engaged in resisting the assumptions of their medical education, who challenged industry influence and wrestled with all of the tensions of that challenge, were equipped

with some of the most fundamental tools to take on the bigger question of whether it should be eradicated. They had experience actually changing things, even if it was a small thing; they had overcome the hurdle of speaking up about their concerns in a context where it seemed that effort could have serious consequences for them; and finally, they looked around and noticed that they were not alone – they formed networks and solidarity with other students and other movements and gained both confidence and awareness about collective strength. In these ways, what students learned in the activist curriculum was just as valuable as their formal teaching. They learned about their potential as social actors to change the world.

Limitations of the Study and Recommendations for Future Research

There were several limitations to this study. The sample was limited in both size and representation of the student body more generally. A larger sample could yield more generalisable results about students who are critical of industry. A sample of medical students who did not identify as critical of industry could have yielded results about the student experience of medical school more generally. The study was limited theoretically in understanding the issue primarily from a political economy perspective. Other theoretical orientations could have produced different results. For instance, I could have used an anthropological approach to gain a deeper understanding of what gifts mean in this context, drawing on the history of gift-giving and anthropological theorising on the various meanings of the gift, as well as the corporatisation of the gift. Slaughter and colleagues (2002) have done fascinating work studying science and engineering faculty members involved in university-industry relations; they suggest that when professors entered into partnerships with industry, students became products,

purchased by corporations (289). There is a need for further theorising on commodification of things and people in the context of university-industry relations.

Another neglected theoretical component of this dissertation was the power dynamics between students and in the hierarchical structures of medical education, particularly with respect to gender, ethnicity and other equity-based orientations. This type of investigation could build on Brenda Beagan's (2005) work on classism in medical school, where she has found that students from working-class or impoverished backgrounds can experience alienation in medical school. This line of research could address the hierarchy of supervision in medical school. Students in this study expressed uneasiness in discussing their objection to industry influence when they were in a clinic setting, because they did not want to suffer repercussions. It would be useful to pursue the gendered and racialised dimensions of this experience, acknowledging power relations and attending to dilemmas that students face when they object to a preceptors approach to medicine.

Further Research

Another avenue for further research would be to explore how bodies matter when students learn to make clinical decisions about drugs. How are patient interests and desires, their material bodies, and the drugs prescribed in the context of modern medicine intra-related? How do discourses and materialities intertwine in the clinic? I am interested in how this type of theorising would intersect with theories of alienation, where people are separated from the product of their work. Students approach human bodies with uncertainty about their knowledge and abilities, uncertainty about the source of their clinical evidence they use to make decisions, and uncertainty about the

influence of the pharmaceutical industry through gifts and relationships with pharmaceutical representatives. It would be useful to investigate how this uncertainty affects physicians' relationships to the patient, and to the work of doctoring. Oldani's work notes that the actual patient is never present during the doctor-rep exchange and most often exists only as a medical type, like a 'patient with diabetes.' Bodies are endless sites for potential pharmaceutical cures, and this potential translates into 'the yield on the gift' in various forms of profit for the company, but it also produces risky side-effects for patients (Oldani 2004: 337). Thus the relationship between doctor and rep can exist away from the patient, without the patient's knowledge, but the patient's body is central to the exchange, and it is the patient that incurs the risk. The separation between students of medicine and human bodies requires further theorising.

Finally, there is a need for theoretical work investigating what it would mean to practice medicine that is not influenced by industry; essentially asking whether it is indeed inevitable. This sort of investigation would entertain a radical revision of medicine addressing professional dominance, the biomedical model of medicine, and the fate of the pharmaceutical industry. Ultimately it would have to contend with how movements outside of medicine challenge various facets of the neoliberal economic model and its roots in the capitalist mode of production. On this line of thought, it would be interesting to expand this kind of study to regions outside of North America. I have acknowledged in this work that the few students who had exposure to a critical framework in social movements outside of medicine had a different kind of insight that informed their criticism of industry. They were able to think outside the medical model for solutions. If students have experience with political movements that are not bound to

the norms and assumptions of modern medicine, they may understand the problem of pharmaceutical industry influence and its solutions differently. It is possible that medical students from other parts of the world might have more exposure to broader political movements than students in the US and Canada, thus this study could be expanded internationally.

This study has been motivated by concerns that medical decisions influenced by a profit-motive are not always advantageous for patients and that health care is increasingly defined and organised in market terms. In this work I am acknowledging that this 'logic' of the market is not always accepted; where there are hegemonic ideas, there is resistance. I have attended to a particular form of that resistance in order to better understand how medical knowledge is produced. I was compelled to acknowledge movements amongst students to address industry influence because I believe it is possible that students can challenge the corporate model of medicine by drawing on their idealistic understandings of what medicine should be. These ideals are tested, enlivened, challenged and even undermined in the context of medical education today, which is tied closely to industry. What becomes of these ideals will be revealed as students continue to resist, confront the tensions, and organise themselves to create a medicine that fulfills the promise of their ambition. At this point students who resist industry influence in medical education have an opportunity to accept the inevitability of industry's presence, or start to quite radically re-envision medicine.

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Appendix 1: Informed Consent Form

Date: February 18, 2010
Study Name: Drugs in the Classroom: An Investigation of Pharmaceutical Industry Influence on Medical Education in Canada and the United States
Researcher: Kelly Holloway, PhD Candidate, Sociology, York University, holloway@yorku.ca

Purpose of the Research: The purpose of this study is to understand the extent to which the pharmaceutical industry is influencing medical education in the United States and Canada, and how this trend differs in each country. I will begin by comparing policies from medical schools in order to understand the extent to which medical schools in the United States and Canada have addressed possible conflict of interest from industry funding. I will then investigate curricula from eight medical schools to understand the extent to which the pharmaceutical industry has a presence in the education of medical students. I will investigate the degree of private funding, specifically pharmaceutical funding, at these institutions to see if there is a correlation between funding, curriculum and policy. Finally, I will interview medical students who have developed a critical consciousness of the influence of pharmaceutical industry influence in medical education in order to understand their experiences of this phenomenon, their characterisation of the problem, and the alternative they advocate.

What You Will Be Asked to Do in the Research: You will be asked to discuss your opinions of and experiences with the influence of the pharmaceutical industry in medical education, your characterisation of the problem, and the alternatives you advocate. The interview will take approximately 30 minutes to one hour.

Risks and Discomforts: I do not foresee any risks or discomfort from your participation in the research.

Benefits of the Research and Benefits to You: I do not foresee any benefits of the research to you but hope that you will find it interesting to discuss these subjects.

Voluntary Participation: Your participation in the study is completely voluntary and you may choose to stop participating at any time. No incentive is offered to you for your participation. You have the right to not answer any question. Your decision not to volunteer will not influence the nature of your relationship with York University either now, or in the future.

Withdrawal from the Study: You can stop participating in the study at any time, for any reason, if you so decide. Your decision to stop participating, or to refuse to answer particular questions, will not affect your relationship with the researchers, York University, or any other group associated with this project. In the event you withdraw from the study, all associated data collected will be immediately destroyed wherever possible.

Confidentiality: Recordings and notes from interviews will not be associated with identifying information. All information you supply during the research will be held in confidence and unless you specifically indicate your consent, your name will not appear in any report or publication of the research. The data will be collected through handwritten notes and a digital recording device. Your data will be safely stored in a locked facility and only research staff will have access to this information. The data will be stored for ten years and then destroyed by shredding of all paper files and permanently deleting all computer files. Confidentiality will be provided to the fullest extent possible by law. This research will be presented in my dissertation, in conference presentations, in journal and other academic publications.

Questions About the Research? If you have questions about the research in general or about your role in the study, please feel free to contact Kelly Holloway by e-mail (holloway@yorku.ca). You can also contact the York University Sociology Department at 416-736-2100 Ext. 33913. Address: 2075 Vari Hall, 4700 Keele Street, Toronto, Ontario, Canada M3J 1P3. This research has been reviewed and approved by the Human Participants Review Sub-Committee, York University's Ethics Review Board and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines. If you have any ethical concerns or questions about this process or about your rights as a participant in the study, please contact the Sr. Manager & Policy Advisor for the Office of Research Ethics, 5th Floor, Research Tower, York University (telephone 416-736-5914 or e-mail ore@yorku.ca).

Legal Rights and Signatures:

I *( )*, consent to participate in "Drugs in the Classroom: An Investigation of Pharmaceutical Industry Influence on Medical Education in Canada and the United States" conducted by Kelly Holloway. I have understood the nature of this project and wish to participate. I am not waiving any of my legal rights by signing this form. My signature below indicates my consent.

Signature Participant Date

Signature Principal Investigator Date

Appendix 2: Interview Questions

BASIC INFORMATION
What medical school are you attending currently?
What are you studying?
What year are you in?

GENERAL
Please tell me what you think about the influence of the pharmaceutical industry in medical education?
What are your experiences of pharmaceutical industry presence in medical education, as a medical student?
[Are pharms in the classroom, giving away free stuff, funding research, in the curriculum?]
Is there policy at your school about the influence of pharmaceutical companies in medical education?
Do you think that pharmaceutical industry presence in medical education is a problem, and if so, in what way?

CAMPAIGNS
Have you been involved in any campaigns to limit pharmaceutical industry presence in medical education?
What was the campaign? How did you organise? What did you do?
Can you tell me about your involvement in this campaign?
Who did you collaborate with?
What did you hope would be the result of the campaign?

CAMPAIGNS:
For U.S. Students:
Can you tell me about the Pharmfree objective to reduce conflict of interest at medical schools and academic medical centres?
Can you tell me about the Pharmfree objective to seek out evidence-based and unbiased sources of information rather than to rely on pharmaceutical representatives for education?
For Canadian Students:
Have you been involved with CFMS, Students for Medicare or any other organisation of medical students?
Can you tell me about that organisation's perspective on the pharmaceutical industry?
Are you familiar with AMSA's Pharmfree campaign?

MEDICINE
Why did you go into medicine?
Is there an ethos or value that informs your approach to medicine?
Is there something about the pharmaceutical industry that is different from or in opposition to those values?
What is it?

ALTERNATIVES
What do you see as the alternative?
Can you tell me about Evidence-Based Medicine?
What are the advantages and disadvantages of Evidence Based Medicine?
Are there any other alternatives?

Appendix 3: Demographic Questions

1. Gender:
2. Age:
3. To which ethnic or cultural group(s) do you belong?:
 Please specify which apply to you:
 Visible minority
 Lesbian/Gay/Bisexual/Trans/Two-spirited
 Francophone
 Person of Aboriginal descent
 Person with disability
 Other relevant category (specify)
4. Is English your first language?
5. If English is not your first language, what is your first language?
6. What is your current level of study in medicine (year, programme)?
7. Do you have any other professional or academic degrees? What are they?
8. What was your major in your undergraduate education?

Appendix 4: Participants Level of Study, Previous Degrees and Undergraduate Degrees

Level of Study	Other Degrees	Undergraduate Degree
3RD YR MEDICAL STUD.	MA, Bioethics	Biochemistry/Economics
2ND YR MEDICAL	BA, Medical Science	Medical Science Major/Music Minor
PGY-2 PSCYHIATRY	NO	Community Health
2ND YR MEDICAL	NO	Political Science/Sociology
2ND YR/OSTEOPATHIC	NO	Nutritional Science
MS3	NO	Latin
4TH YR	Undergrad Degree	Chinese Religion
3RD YR FAMILY MED.	MD, MPH	Public Health in Health and Beauty
YR 4/5 ND PROGRAM	BA Applied Linguistics	Applied Linguistics
1st year MS	MS	Molecular Cell Biology
2ND YR MD/MPH	N0	Biochemistry
3RD YR MD	PhD, Cell/Molecular Biology	Chemical Engineering
2nd YR MS	NO	Music
2nd YR MS	MPH	Biochem/Mo Bio/ Asian Studies
4TH YR MD	MA Public Health	Biochemistry, BS
Med-Peds PGY3	MD, MS	Education Studies, History, Policy
MS4-MD	MA Public Policy Candidate	Physics
NOT ANSWERED	NO	English Lit. Med Microbiology, Immunology
3RD YEAR	BSc	Biomedical Sciences
1ST YR MEDICAL	MA Public Health, BA	Political Science/Environmental Studies
2ND YR MEDICAL	BSc-Cellular/M&M BIO., ETC.	Biology/Cultural Anthropology
3RD	NO	BSc
4TH YR	BA Medical Science	Genetics
4TH YR	BSc Psychology, BA French	Psychology/French
3RD YEAR	BSc Honours	Biochemistry
1ST YR RES.	BA Psychology, MA PA Health	Psychology
R2	NO	Medical Sciences (Physiology)
POST GRAD YR 5	MD CCFP MSc.	Biology
4RTH YR MEDICAL	BSc Pharmacy	Pharmacy
2ND YR MD	BA	International Relations
4TH YR	Bachelor Health Science	Health Science
1st YR	Masters public health/ BA	Political Science/Environmental Studies
4TH YR	BSc., GDip Global Health	General Science

RES. YEAR 2/2	BA/ BSc/ MSc/ MD	Physiology
4TH YEAR OUT OF RES.	MSc./MD/FRCPC/PhD	Biology
MS2	GENERAL B.A.	Liberal Arts
4TH YR	B. Sc. & B.A.	Scien./Geog./Engin./Eng.Lit.
1ST YR RESIDENT	Mphil, MD	Biology/Internat. Development
2ND YR	B. Sc. Occ Therapy,M Sc. Health Admin.	NONE
2ND YR MDCM	NO	N/A
4TH YR MD	B.B.A.	Public Accounting
2ND YR	NO	Not Relevant
RES. Year 1, Family Med	BAHons, MA EuropeanBusiness, MD	Biological Anthropology

Appendix 5: Codes by Thematic Category

Opposing the Pharmaceutical industry

AntiPharma Organising
Anti-Pharma Practice
CFMS Pharma Debates
COI Policy
Conflict of Interest
Critique of Industry Profit
Curricular Reform
Local scorecard use
Med society funding
Med student apathy
Med Student Arrogance
IFMSA
Opposition to Industry
Pharmfree Activism
Suits Scarves
Activist Background

Evidence-Based Medicine

EBM and Industry
EBM Critique Bias
EBM Critique Patient Health
EBM Critique Patient Specificity
EBM Critique Quality of Evidence
EBM Critique Study Selection
EBM Critique Time
EBM Definition
EBM in Practice
EBM Lack of Critique
EBM Non Code
EBM Response to Biased Research
EBM Support
EBM Training
Education on Industry
Ethics Health Care
Ethics Training
Mentorship

Ethos/Values
Why Medicine
Ethos Access
Ethos Critical Thinking

Ethos Health as a Right
Ethos Hippocratic Oath
EthosImproving Lives
Ethos Integrative Practice
Ethos Love
Ethos Patients First
Ethos Patient Trust
Ethos Responsibility
Ethos Social Justice
Ethos Utilitarian
Health care inequalities
Objectivity of medicine

Industry Presence
Influence of Industry
Influence of literature
Profit
Samples

Solution

US Health Reform Debate

Acceptance of Industry

Appendix 6: Participant Values Informing Approach to Medicine

Code	Participants who used this code	Example (These are direct quotations from participants)
Patients First (Helping People)	14 U.S. 5 CAN 9	Because you know, professionalism to me means always putting the patient's interest first because as a professional you enjoy a special relationship with society. You know, you're not - you don't have to run your business – you don't have to run your practice like a corporation, you don't have to worry about not having a job, you know like you're a professional you make a deal with everyone that you're going to do a certain thing. And that thing is to never do something that doesn't put a patient's interest first (Participant from U.S.)
Access (Equity) (Also represented in this category are students who spoke of Health as a Right (2 U.S. students) and Social Justice (2 CAN students)	9 U.S. 3 CAN 6	It's fundamental to having a healthy life and to being alive in many cases. And access to medicine I think is a very important aspect of that – like access to physicians, doctors. But you know just having access to a physician is not doing anything because I can diagnose a problem but if I don't have medicine for it the patient would die, so what's the point. So I think access to medicine has you know, having access to health care providers is one aspect and also having access to the health care itself (Participant from U.S.) We are citizens in this country and we have the right to be healthy. And I didn't go to school because I thought that someone was – I was part of a free market economy and I was going to only help those that could afford it. I believe everyone has the right to health care and that's why I got educated (Participant from U.S.) Certainly an essential principle for me is the idea of social justice. And that's really the common theme that has been what's motivated me and what that means to me is the idea of fairness in terms of opportunities, access to resources like health care, and the distribution of societal resources. And I think medicine can play a big role in that. (Participant from CAN)
Hippocratic Oath	5 U.S. 2	I think we're often taught do no harm, but it's not just do no harm, its do good. Do as best as

	CAN 3	you can and then some. So I guess it's do no harm, but the positive of do no harm. (Participant from CAN)
Improving Lives	4 U.S. 1 CAN 2	We're all warmed by fires that we didn't build. So I think part of the profession is to create opportunities for others – improve the lives of others. And not just in the very narrow health sense, but in the broader, sense (Participant from U.S.)
Critical Thinking	3 U.S. 2 CAN 1	Obviously using what I consider to be using good judgment. I guess that's kind of a broad term. Always think things through, don't just go with the flow. I think that happens a lot in medicine. I'm sure there will be times where I do something just because I'm told to do it even if I disagree but I'm going to try not to do that. Try and stand up when I can. (Participant from U.S.)
Holistic Care	2 U.S. 1 CAN 1	So patient care should be holistic, and it should be, the practitioner should be engaging their patients over time. The same patients. Knowing them well, tracking them through life, and addressing their problems as they come up. That's good primary care, (Participant from CAN)
Commitment and Involvement	1 U.S. 0 CAN 1	I don't know if I have an underlying principle.[pause]. I think I always really value meaningful commitment and meaningful involvement. (Participant from CAN)
Honesty, Transparency, Thoroughness and Love	1 U.S. 1 CAN 0	I guess the principals of honesty, transparency, thoroughness and love. These are principles that if I feel like I adhere to them and I'm thorough in my studies and workups of patients and I approach my studies and patients with love and honesty and transparency that those principals will serve me and my patients better (Participant from U.S.)
Patient Trust	1 U.S. 1 CAN 0	Um, I guess um I mean I guess it's partly just about building that relationship of trust with the patient and uh, you know all that facets of that involved, so helping them develop trust in me, and working with them on their issues (Participant from U.S.)
Dignity	1 U.S. 0 CAN 1	Find more dignified health care opportunities for people (Participant from CAN).

Utilitarian	1 U.S. 1 CAN 0	There's two actually competing which makes it difficult. One is the basic ethical principles of medicine – the idea that I am beholden to my patients – to help them and safeguard their welfare. The second is a public health approach – where I adhere more to a utilitarian approach to health where you're constantly trying to figure out what the greater good is (Participant from U.S.)
Caution	1 U.S. 0 CAN 1	Caution would be the guiding principle. If you have an old drug like an ace inhibitor that would give you a cough, and a new drug that maybe doesn't give you a cough, because the new drug is new it won't show long term effects for years. I feel much better sticking with the old drug until the new drug has proven itself over a number of years (Participant from CAN).