

The Impossible Clinic

*A Critical Sociology of
Evidence-Based Medicine*

BY ARIANE HANEMAAYER



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Introduction

ACCORDING TO THE *British Medical Journal*, administering soapy enemas to women during labour was a common medical practice up until the 1970s (BMJ Publishing 2014). Women were frequently subjected to this procedure on the basis that it was good for the mother and baby: mothers would not have to worry about “leakage” from their “back passage” during childbirth, which could be, according to conventional wisdom, embarrassing for them. The additional benefit, medical professionals thought, was that during delivery newborns could be protected from the slight chance of coming into contact with harmful bacteria contained in the excreted stool. While we might be suspicious that any potential embarrassment for the women could be considered barely medical in nature, the health of the baby was a primary concern: Who wouldn’t support the idea that new babies are vulnerable and should be protected from health hazards early on to ensure their lives are off to the best possible start? The procedures were, as one might imagine, quite uncomfortable and even painful for women, especially when administered during an already taxing experience. But, even if she wanted to, how could a woman refuse what she was told would be “good for the baby”? On what solid basis could anyone question this medical procedure?

Ultimately, scientific study alleviated any potential concerns of mothers-to-be. Reveiz, Gaitán, and Cuervo (2000, 2, emphasis

added) conducted a review of the literature to assess whether enemas were, in fact, beneficial:

These studies found no significant differences in any of the outcomes assessed either for the woman or the baby. However, none of the trials assessed pain for the woman during labour and there were insufficient data to assess rare adverse outcomes. Thus *the evidence speaks against* the routine use of enemas during labour.

By testing whether enemas were actually improving the outcome of newborn-and-mother health, the researchers determined that they were not effective. They recommended that this practice, which had been administered on the basis of a commonly held belief within the medical profession, be stopped. But how did this enema-giving practice become commonplace to begin with? On what were doctors who administered enemas before this study was released basing their judgments? Further, who initiated the idea of using research to question the judgment of physicians in the first place? And, subsequently, if research could disrupt conventional practices in the clinic, could it also be used to correct and improve that “conventional wisdom” with scientific measurement? Questions of this nature can be attributed to an approach to medical practice that would come to be known as evidence-based medicine (EBM), and they were fundamental to clinical practice reforms in the last half of the twentieth century.

This book is about the conditions that led to the emergence of EBM, which is often defined as: “The conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients. The practice of evidence-based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research” (Sackett et al. 1996, 71). EBM requires that physicians consult and integrate medical (i.e., scientific) knowledge into their decisions. As such, it takes place at the level of the physician’s individual

judgment. “Evidence” is considered to be any research regarding the use and effectiveness of therapies and medical interventions. This research primarily relies on the use of randomized controlled trials (RCTs) (systematically executed double-blind trials of the latest therapies), the results of which are then subject to tests of statistical validity, which determine the effectiveness of an intervention in a population.

The emergence of EBM in 1992 (the date this term was first coined in the medical literature) led to the restructuring of Western medicine in less than two decades. Today, the contributions of scientific evidence are heralded as revolutionary in medical practice. By using data pertaining to the effectiveness of specific therapies and drawn from large population samples, practitioners are able to make informed judgments about their individual patients. In the past, according to Guyatt and colleagues (1992), medical practice relied heavily either on a physician’s “intuition” or what was considered conventional knowledge in the field at the time. EBM, however, claims to have changed the traditional practice of medicine by adding rigorous scientific tests of validity to the results produced by scientific study. These combined results can then be entered into recommendations for actual clinical practice in the form of clinical practice guidelines (CPGs), which are a set of implemented strategies for managing disease through therapy and/or treatment programs. The administration of soapy enemas to women in labour is one example of a procedure whose basis could not be proven by measures of clinical effectiveness. Although the rationale for this practice appeared to be medically relevant (i.e., avoiding harm to the baby), it was based on flawed logic that had become convention rather than on empirical science.

The medical community praised the introduction of EBM to the clinic: “EBM has been of major value to medical practice, especially with regard to screening methodologies and therapeutics” (Schechter and Perlmanan 2009, 161). The production and collection of vast amounts of data (i.e., evidence) about new and emerging technologies and therapies has shortened the lag time between

medical research and innovation and clinical practice. EBM has the power and potential to keep physicians abreast of the newest and latest tried-and-proven tests, techniques, and therapies for many known diseases or conditions. Many medical journals now focus on translating the results of medical studies into recommendations for clinical practice. EBM journals seek to improve the uptake of knowledge from laboratory research to the patient's bedside. Using evidence in clinical practice ensures that clinical care is being provided according to best practices, that the most effective recommendations are being prescribed to the public, and that doctors can be certain their judgments are based on the most up-to-date knowledge.

The example of soapy enemas presented above shows that the use of evidence in clinical practice predated the coining of the term "EBM" and its clinical method. There is a substantial amount of work in the humanities and social sciences demonstrating how medical practice was informed by evidence prior to the official appearance of EBM in the medical literature. Historians have shown that scientific evidence helped reform medicine much earlier than the pronouncement of the need for EBM. For example, the pharmaceutical market and the progress of drug research were both greatly influenced and advanced by the medical sciences (Marks 1997). EBM could not be considered "new" insofar as science had become a large part of medicine since the World Wars. What the term "EBM" provided when it appeared in 1992 was a name for a specific approach that combined methods of clinical decision making with clinical sciences, which corresponded with emerging training practices. *The Impossible Clinic* traces the emergence of this way of thinking about clinical work: it examines how the medical sciences of research became linked to bedside practice. When did this convergence first appear? What programs were put in place in medical education that enabled the uptake of evidence into practice? What forms of power converge in the medical field, and what effects do they generate? And, finally, what relations allow EBM to go on despite its identified shortcomings?

Other researchers have examined various aspects of the history and effects of EBM. Jeanne Daly (2005, 235) draws on historical evidence as well as key informant interviews to argue that EBM emerged as a result of “the development of a science of clinical care.” She views both clinical epidemiology and EBM as distinct fields of science, although with much cross-fertilization (236). Clinical epidemiology defined the methods used to research the effectiveness of clinical intervention, and EBM attempts to implement this knowledge in clinical practice (206). My argument takes a different tack: clinical epidemiology emerged to respond to various problems identified with clinical practice within the medical literature. As new science, it then provided a taxonomy for the organization of clinical judgment; clinical epidemiology provided the discursive conditions of possibility for the interventions of EBM in the clinic. The implementation of evidence-based CPGs allowed EBM to intervene in clinical judgments, which, as my findings show, are now coming to be regulated at a distance by provincial medical colleges in Canada.

With regard to sociological studies of EBM, Berg (1995) demonstrates that postwar medicine reconceptualized the cognitive capacities of physicians, locating their decision-making abilities in their brains. Later, building on this research, Timmermans and Berg (2003, 8) argue that EBM was a result of standardization processes: “Evidence-based medicine is part of a wider movement to generate uniformity and quality control by streamlining processes.” Like me, they see EBM as an attempt to intervene at the level of individual decision making through CPGs. Overall, they see EBM as a reaction to medical authority:

With spiraling health care costs, more emancipated patients/consumers, increasing attention to medical practice variations, an information overload, and an overall critical scrutiny of the role of experts and professionals in society, the medical profession felt it had to take unprecedented action to maintain its position as exclusive safe-keeper and wielder of medical knowledge. (Timmermans and Berg 2003, 16)

My findings show that a contingency of historical events provided EBM with more than an instrumental defence of medicine's boundaries and authority. I argue that CPGs, which Timmermans and Berg understand to be the cornerstone of EBM, are antithetical to its aims: CPGs, when used to regulate, undermine medicine; they fail to increase the physician's capacity to judge because they externalize judgment through the normalizing power of regulation.¹ I explain that this is the case because liberal forms of governance utilize the failed effects of EBM to maintain dominant forms of rule that benefit liberal objectives, such as governing medicine at a distance, responsabilizing physicians for health care, and doing little to invest in health care infrastructure. While my findings agree with those of Timmermans and Berg in many respects, specifically regarding the standardizing effects of CPGs, my objectives are to show the relations of discourse and strategies of intervention that have congealed EBM within a dispositif of liberal medicine.

Despite the support for EBM from within and beyond the medical community, it also has its critics. In just over two decades since EBM first appeared, the EBM Renaissance Group published its criticism in the *British Medical Journal*. The authors argue that EBM is in crisis. The fact that now there is just too much evidence and, as a consequence, too many guidelines is among the problems they highlight. They also worry that medicine has, as a result of the proliferation of guidelines, an "overemphasis on algorithmic rules" (Greenhalgh, Howick, and Maskery 2014): following guidelines might be replacing individual expertise and decision making. They suggest that medicine needs to reinvigorate clinical expertise and training in decision making, and "reorient" doctors away from rule following. How did medicine go from using evidence to improve clinical judgment to emphasizing rule following? To answer this question, I explain the social conditions that led to the uptake of EBM and the implementation of CPGs, and the consequences thereof. I not only confirm that CPGs are being used to punish and regulate doctors but also explain how and why.

The Impossible Clinic argues that EBM has had an effect on medical regulation in Canada. [Chapter 1](#) shows how EBM emerged from problematizing clinical judgment in the literature of medical practice, which includes addressing the following themes: the disjuncture between the laboratory and the clinic, practice variation, and medical authority. The emerging science of clinical epidemiology sought to remedy these identified problems, which I explore in [Chapter 2](#) through a case study of the creation of McMaster University medical school, the home of the EBM Working Group and the place where these new methods emerged. [Chapter 3](#) demonstrates how the reform of medical education required new teaching methods, such as problem-based learning, to train physicians to become lifelong learners, to stay up to date with new information, and to apply the best evidence in their practice through the critical appraisal method. I show that new training programs responsabilized a new kind of student, one who had to keep up with new information and apply it in their practice beyond graduation.

Emerging programs in continuing medical education were created to encourage physicians to use the latest evidence in their practice and thus to keep up to date. In [Chapter 4](#), I argue that EBM served to stabilize the use of CPGs in practice – the time constraints on practising physicians made it nearly impossible to keep up with new information. Evidence-based guidelines, it was reasoned, would make it easier for physicians to apply evidence at the bedside. Physicians' responsibility to maintain their competence with the use of new information, however, would later fall under the oversight of the provincial colleges, who were charged with licensing them and maintaining professional standards, which, after EBM, meant using the best evidence in practice. I constructed a database of disciplinary decisions to show that guidelines are being used to justify sanctions for professional misconduct. The professionalization of expertise externalizes the judgment of the physician, and this is antithetical to the aims of EBM as it reduces clinical judgment to the use of guidelines over and above improved decision

making. I now turn to a discussion of the theoretical and methodological rationale of this book.

Foucauldian Genealogy and the Sociology of Medicine

While it may seem both obvious and cliché to engage with Foucault in a contemporary study of the profession of medicine, my reasons for doing so are guided by an interest in the ability of Foucault's genealogical method to, in the words of William Walters (2012, 118), "[denaturalize] objects and subjects, identities and practices that might otherwise appear given to us." Genealogy offered me the critical gaze by which I could historicize the emergence of EBM not only as the triumph of a new clinical science that rescued medicine from its limitations and improved clinical care but also as a field of knowledge deployed to regulate clinical activity. I examined the various forces and debates that were "at play," to paraphrase Foucault, leading up to the first statements of EBM; by conceptualizing medicine as a contested field, a place where emerging concerns and a "will to knowledge" about clinical reasoning became the dominant conversation. Genealogy is a suitable method for my research because it allows me to pose and answer questions about the history of EBM, its various dimensions of knowledge production, and how that knowledge comes to structure and organize human activity. Foucault's analytic of power offers a terrain on which to observe the regulatory mechanisms of the profession of medicine and to explain how their ontological status in a field of discursive practices was established. It also shows how the codification of medical judgments serves as an instrument to illuminate and introduce "all the shading of individual difference" between the individual's judgment and the norm (Foucault 1979, 184). Genealogy informs my sociological analysis in the following ways: it enables me to pay attention to the contingent lines of descent that allowed CPGs to emerge, to explain that CPGs are mobilized by force relations that normalize the profession of medicine, and to explain the effects of CPGs on institutional and discursive practices. Foucault's

analytic of power provides me with my methodological rationale for writing this book.

Method and Methodology

Because the history of EBM has been written by both historians and social scientists (e.g., see Daly 2005, or Cassels 2015), many of the key players have already been interviewed, and connections between those individuals who had similar instrumental and laudable interests have been mapped within networks. Many of these stories share and reinforce a dominant narrative about those individuals who sought to remedy the ailments of unscientific practice, and their successes have resulted in EBM. These works spotlight important contributions to modern medicine, but they do not seek to explain the social and political landscapes within which their voices gained traction: What were the social conditions that allowed clinical practice to change so rapidly and clinical sciences to flourish? And why, if EBM was such a success, are there ongoing concerns about the dangers of evidence-based guidelines? If EBM fixes unscientific medicine, then is there any truth to the claim that it is in crisis? *The Impossible Clinic* concludes that clinical epidemiology emerged as a response to institutionally identified problems within clinical practice. The taxonomies of clinical judgment served to found and justify new tactics for regulating medicine, inculcating educational reform at McMaster University in Ontario and (later) across Western medicine globally, and creating evidence-based CPGs, which, when deployed through disciplinary strategies aimed at professional regulation, produce effects that are antithetical to the objectives of EBM. Critical appraisal and evidence-based medicine contradict each other, yet EBM occurs because it has congealed within a dispositif. My goal in this book is to provide an *effective history* of EBM² – one that has yet to be portrayed in the humanities and social sciences literature.

In investigating how the institution of medicine came to educate practitioners through the use of EBM, I relied on two main

sources: 1) general medical journals that have been in circulation in Canada, the United States, and the United Kingdom since the mid-twentieth century and 2) archival materials. The term “evidence-based medicine” was first coined by clinical researchers at McMaster University in Ontario, Canada. Research was carried out in the Archives of Ontario (AO), the National Archives of the United Kingdom (NA), the Royal College of Physicians and Surgeons of Canada (RCPSC) Archive, and at the McMaster University Faculty of Medicine Archives (McMaster Archives). I chose the Archives of Ontario for their policy documents, which pertain to the creation of new medical education programs in Ontario. I explored how the McMaster University medical school was created and what discursive and political influences shaped its objectives. I examined documents at the National Archives of the United Kingdom in order to understand what funding initiatives supported the international proliferation of clinical epidemiology and the creation of the Centre for Evidence-Based Medicine in 1995. The RCPSC Archives contain important documents concerning the regulation of continuing education and professional competence. The Faculty of Medicine Archives at McMaster University contain numerous documents pertaining to the history of both the clinical epidemiology program and the medical school. I examined historical documents both for the discursive rationale for the creation of the medical school program and for the political relationships between medical practitioners, university administrators, and government officials. These documents demonstrate not only how the questions in the literature were institutionalized in various training programs targeted directly at the education of clinical practitioners but also how material conditions organized the activities of medical training. I also collected archival materials that were published by the English-speaking provincial colleges of physicians and surgeons across Canada. These materials include medical acts, college-endorsed policies, and CPGs as well as the disciplinary decisions from 2010 to 2016. I examined these statements for evidence of the use of CPGs as a measure of professional misconduct across Canada.

This method allowed me to analyze clinical epidemiology, and later EBM, from within an archive of medical statements about an emergent mode of reasoning. Foucault (1972, 57) defines the archive as “the set of discourses actually pronounced ... as a set that continues to function, to be transformed through history, and to provide the possibility of appearing in other discourses.” The archive holds various discourses, or collections of statements, about social phenomena that are not discipline- or context-dependent. The archive is understood to be a repository of statements that deem what is and what is not true of various human activities. Within each “layer” of the archive, certain systems of thought become dominant. Archival work “aims to explain the regularities of these archival statements” as the archive contains “the conditions of possibility for the practical know-how of subjects engaged in knowing” (Datta 2007, 278–79). “Know-how” includes the activities of doctors within the clinic. Genealogical analysis aims to show the “structuring of thought and life” by introducing the role of knowledge in organizing power relations (286). Statements are understood as “events” within a discourse (Foucault 1972, 4), and documents are understood as “monuments” that have enduring historical significance (7). Documents are created to represent and say something authoritative about a phenomenon. I analyzed archival documents for their veridical and juridical statements about social objects/practices, and how these related to the organization of human activity in the clinic.³

Foucauldian genealogy developed from an engagement with the historical and theoretical work of Friedrich Nietzsche. Foucault approached the study of history as a stratification of various systems of thought that aim to produce truth statements about the “human” as an object of scientific discourse. Carrying out such research involves investigating the “lines of descent” for particular institutions, focusing on how they came to be as they are, even when they seem “complete” today (Walters 2012, 117). By understanding that clinical judgments are conceived as practices that can be learned and ameliorated, my objective is to grasp the conditions that make particular ways of judging, at particular points

in time, acceptable, desirable, and viable. To paraphrase Foucault (2003, 253), the interconnection between the rules imposed on medical judgments and the reasons given for using scientific evidence can be visualized in such institutional programs as medical education. To analyze the practice of clinical judgment under EBM is to analyze programs of conduct, such as medical training curricula, and what Foucault calls the “codifying effects” of knowledge about various therapies, populations, and validity measurements: “The production of true discourses served to found, justify, and provide reasons and principles for these ways of doing things” (252).

The statements found in an archive are understood as answers to emerging questions and as solutions to emerging problems in a discursive field. Genealogical research aims to identify these “problematizations”: “To analyze problematizations is to investigate why certain things (behaviour, phenomena, processes) become articulated *as* problems, how they are linked up with or divided off from other phenomena, and the various ways (conditions and procedures) in which this actually happens” (Osborne and Rose 1997, 97, emphasis in original; cf. Foucault 1988, 17). For instance, over the last half of the twentieth century, Western medicine became specifically concerned with questions about the nature of clinical practice. Archival statements about clinical practice represent “styles of articulation,” which are “a way of giving voice to a certain set of problems and aspirations.” EBM is a result not only of efforts to scientifically systematize and classify clinical judgments but also of questions about the application of scientific research to clinical practice. Each of these developments can be traced through the changing problematizations of medical practice, which are the “conditions for the emergence of new theories” (Osborne and Rose 1997, 88). In other words, EBM is a product of the social and historical circumstances that enabled the articulation of a set of problems relating to clinical judgment in the research literature, and these articulations served to found, justify, and provide reasons for the reform of medical practice.

The statements in archival documents were created in institutional spaces. In his historical work, Foucault explains both the practices and events that relocated the medical gaze onto the human body: the study of medical discourse was carried out “*in a field of non-discursive practices*” (Foucault 1972, 68, emphasis in original). Nondiscursive practices are “characterized by the demarcation of a field of objects, by the definition of a legitimate perspective for a subject of knowledge, by the setting of norms for elaborating concepts and theories. Hence, each of them presupposes a play of prescriptions that govern exclusions and selections” (Foucault 1994, 11). I see the field of EBM as bringing together both ways of knowing and prescriptive rules for doctors to follow, such as diagnosing illnesses (e.g., diagnostic criteria, reading test results) and recommending therapies (e.g., writing prescriptions). Osborne (1992, 79) refers to Foucault’s notion of the medical gaze as follows: “This mode of problematization concerns, above all, the way that forms of knowledge, vision and enunciation are articulated together into a particular perceptual model; a kind of ‘sensory economy’ that articulates what the doctor can see, feel, say, teach, or know, and which brings about more or less of an alignment of these functions.” My objective is to demonstrate how these relations of discourse aligned with certain forms of conduct (i.e., what people see, say, and do, and the rules associated with these practices).

I collected archival statements that problematized medical practices associated with clinical judgment. These statements articulated, in the words of historical sociologist Mitchell Dean (1994, 195), the “different ways in which being is necessarily given to thought and the practices that give form to thought.” EBM determines what kinds of knowledge and statements are considered true within the clinic, and what kinds of knowledge and statements are considered false. When analyzing a document, my task is not to merely interpret its meaning; rather, I seek to examine how discourse “organises the document, divides it up, distributes it, orders, arranges it in levels, establishes series, distinguishes between what is relevant and what is not, discovers elements,

defines unities, describes relations” (Foucault 1972, 6–7). I do not use documents to reconstruct the past (cf. Dean 1994, 15), but, instead, to locate “problematizations through which being offers itself to be, necessarily, thought – and the *practices* on the basis of which these problematizations are formed” (Foucault 1985, 11, emphasis in original). In this way, I examine how certain kinds of practices became problematic within the field of medicine.

After my archival visits, I coded documents for what they had to say about clinical judgment. To paraphrase Rose and Miller (1992, 177), the significance of medical discourse is not treated as a top-down ideology; rather, it helps to elucidate not only the systems of thought that articulated the problems of clinical medicine but also the systems of action through which the institution of medicine has sought to remedy those problems. I examine documents for both their scientific statements about clinical judgment as a problematic object and for the solutions offered to correct the identified issues. I take systems of knowledge to be more than just ideas that individuals wrote down; rather, I view them as an “assemblage of persons, theories, projects, experiments and techniques” (Rose and Miller 1992, 177). My archive is composed of statements made by a variety of actors within the social field of medicine, from individual clinicians who were encountering problems in their practice, to ministers of health and education, to university presidents and teachers, among others. The problems of medicine are posed on many terrains, from theories of ecology to logic and decision theory to laboratory medical sciences. The projects that aimed to correct for these problems associated with clinical judgment include new school curricula and new scientific measurements. I observe that the deployment of this knowledge serves to justify the disciplinary techniques that regulate the responsibility of clinicians to keep pace with the most up-to-date evidence.

My research does not attempt to update the visualities of Foucault’s argument on the discursive link between seeing and saying.⁴ Rather, my genealogical approach takes a direction that differs from that taken in Foucault’s work on the medical field. In the words of Osborne (1992, 64), *The Birth of the Clinic* was not

about a professional monopoly of knowledge: “The ‘profession’ monopolizes knowledge in a closed domain – whilst a further gesture of exclusion takes place, within the profession, through the malign development of ‘specialization.’” In fact, Foucault spends hardly any time on the role of force relations in organizing medical activity. His focus was far more archeological than genealogical, but the latter implies archaeology in that it requires researchers to investigate the “conditions of existence” that relate discourse to “the practical field in which it is applied” (Foucault 1991, 60–61). My research begins by considering the relations of discourse, and then I shift my analysis to the conditions that shaped the reorganization of medical activity. In the words of Jon Frauley (2007, 626), I examine EBM discourse “as a structure that is emergent from conditions and which can produce effects in the practical field in which it is employed.” Foucault’s early work on medicine contains no mention of the form of power that, in *Discipline and Punish*, he came to refer to as “normalization” (cf. Osborne 1992, 72), which can be understood as the use of scientifically established standards to regulate human activity in institutionally installed programs of conduct. I am updating Foucault’s work on medicine by making connections between the discursive practices of knowing and the normalizing regulatory mechanisms of the profession of medicine. I explain not just where EBM came from but also what relations of power mobilize medical knowledge, how it came to organize certain forms of activity, and why it continues despite being an impossible project.

From Strategy to Dispositif

In order to support my claim that EBM has stabilized within a dispositif, I now explain how I used Foucault’s criteria. “Dispositif” is a French word often translated as “apparatus,”⁵ and it is defined as

a thoroughly heterogenous ensemble consisting of discourses, institutions, architectural forms, regulatory decisions, laws, administrative measures, scientific statements, philanthropic

proposition – in short, the said as much as the unsaid. Such are the elements of the apparatus. The apparatus itself is the system of relations that can be established between these elements.” (Foucault 1980b, 194)

The apparatus of medicine is made up of an assemblage of various parts, including particular institutions (such as the McMaster University medical school and the colleges of physicians and surgeons); architectural forms (such as the health sciences complex, built to train new medical school graduates at McMaster); regulatory decisions (such as curriculum development and disciplinary committees in medical colleges); and scientific statements (such as clinical epidemiology). I investigate these various elements, all of which coalesce around the discourse of EBM, and the relations of normalization and discipline that structure them.

In order for EBM to go on, despite concerns about its present crisis, this apparatus must be strategic by nature: “In order for a certain relation of forces not only to maintain itself, but to accentuate, stabilise and broaden itself, a certain kind of manoeuvre is necessary” (Foucault 1980b, 206). Apparatuses emerge historically in response to an “urgent need”: this is the element of problematization. Clinical epidemiology, and later EBM, emerge in medical discourse at the precise moment that the discursive object of clinical judgment is under scrutiny from within and beyond medicine. As a solution installed in a particular institution, the apparatus, according to Foucault, “has a dominant strategic function” (195). The historical emergence of EBM was contingent on the need to rework medical training and practice (what Foucault calls functional overdetermination) after various challenges to medical practice in the mid-twentieth century. The strategic elaboration of EBM aimed to allow physicians to critically appraise evidence and apply it at the bedside; however, it also produced unintended effects, such as deresponsibilization.

EBM has become the dominant model of Western medicine because its knowledge and techniques of regulation serve as tactics to enable the persistence of overarching liberal strategies of

governance. Strategies of domination are defined via the following assumptions:

Domination is organised into a more-or-less coherent and unitary strategic form; that dispersed, heteromorphous, localized procedures of power are adapted, re-enforced and transformed by these global strategies, all this being accompanied by numerous phenomena of inertia, displacement and resistance; hence one should not assume a massive and primal condition of domination, a binary structure with “dominators” on one side and “dominated” on the other, but rather a multiform production of relations of domination which are partially susceptible of integration into overall strategies. (Foucault 1980b, 142)

To illustrate the above, Canadian politicians are able to benefit from the responsabilizing and individualizing disciplinary techniques of the medical colleges. It is not that politicians have carefully worked out some project to save money by off-loading the improvement of health care onto physicians and medical colleges. Rather, the current assemblage of EBM and medical colleges serves to maintain the dominant way of governing – one that uses as little regulation as possible at the least possible cost. In politics, in order to maintain power it is advantageous to spend as little as possible on health care and to provide tax cuts. Foucault uses a similar form of analysis in *Discipline and Punish* when he shows that not only are criminals not reformed by prisons but, on their release, their marginalization within society as ex-convicts renders them “useful” to the bourgeoisie and their tolerated illegalities (see my discussion on pp. 174–75).

Foucault’s model is not meant to provide a normative critique, but it does explain how the effects of any institution can be used to further perpetuate the dominant relations of ruling. Medical colleges deploy disciplinary techniques to dominate and correct poor decisions made by physicians. Thus, the concept of tactics is defined as “the art of constructing, with located bodies, coded activities and trained aptitudes, mechanisms in which the product

of the various forces is increased by their calculated combination” (Foucault 1979, 166). Strategies, then, aim to align the effects of tactics, such as disciplinary techniques, with the objective of supporting the overall strategy of domination. The strategies of liberal governance maintain domination by organizing the deresponsibilizing effect produced by medical colleges that use evidence-based CPGs to discipline physicians.

Chapter Overview

I conceptualize the apparatus of medicine as “inscribed in a play of power,” to paraphrase Foucault (1980a, 196), “but it is also always linked to certain coordinates of knowledge which issue from it but, to an equal degree, condition it.” Given that an apparatus consists of “strategies of relations of forces supporting, and supported by, types of knowledge” (ibid.), I first seek to analyze those strategies that structure the field of EBM. In “La pussière et les nuage” Foucault (1980a) spells out his method for analyzing strategies through genealogical analysis. The researcher examines the following elements: the formation of discursive relations; the genesis of knowledge and tactics that individuals apply in determining how to conduct themselves as well as how to judge and instruct the conduct of others; and why these tactics were chosen rather than others. The researcher does this in order to determine what effects have occurred (including disorders, damage, and/or unforeseen and uncontrolled consequences) due to the application of these strategies and how their failure has led to their reconsideration. I now provide the layout of my argument, which moves from a genealogy of clinical epidemiology, to EBM, to the programs of conduct that come to regulate medical activity, to the consequences that follow.

Mykhalovskiy and Weir (2004) argue that social science research has not paid enough attention to the question of EBM – specifically, its impact on the medical profession and the transformation of biomedical reasoning and practices. They suggest that social scientists examine the “discursive preconditions” of

EBM and ask what questions led to the emergence of clinical epidemiology: “How the apparent oxymoron, clinical epidemiology, became historically possible and to what it was a solution is a topic in need of a genealogy” (Mykhalovskiy and Weir 2004, 1065). My research begins by considering the concerns to which clinical epidemiology (and later EBM) was a solution, and how this form of knowledge is used to regulate human activity in the clinic. [Chapter 1](#) works through the discursive relations of EBM. I explore the medical literature in order to spell out how certain questions about the nature of clinical judgments emerged post-Second World War. I draw on an archival analysis of medical journals that were published in Western medicine to show that clinical judgments were rendered visible as the site of a problem that had to be ameliorated. I show the role of clinical epidemiology, an emerging science in the latter half of the twentieth century, in formulating the problems of medical practice as something that could be remedied through educational reform. [Chapter 1](#) spells out the conditions of possibility for seeing clinical judgments as problematic aspects of human activity in the clinic. It sets up the argument in the following chapter, which explains the genesis of this knowledge and how the tactics of conduct changed medical practice. I also discuss alternate and unsuccessful solutions to the identified problems as well as the discursive mechanisms that continue to reproduce those same problems in the present discourse. On finishing this chapter, readers should understand how clinical epidemiology, and later EBM, emerged from questions surrounding the nature of clinical judgment and the desire to control it.

[Chapter 2](#) explores the material relations that organize human activity, and it does so by spelling out the historical, political, and economic conditions that allowed particular changes to medical training programs to occur in lieu of other possibilities. I show how the problematization of clinical judgment in the clinical epidemiology literature provided a justification for creating a new method of training medical students at McMaster University. I draw on archival materials from the government, McMaster University, and the National Archives to show how the McMaster

health centre facilities reorganized medical practice. I also touch on Canada's contribution to the present methods of medical training and practice. On finishing this chapter, readers should understand the material relations that both organized the new model of medical training and contributed to its success in Canada and abroad.

[Chapter 3](#) builds on the work of [Chapter 2](#) and extends the case study of the McMaster medical school by providing an analysis of the development of tactics for conducting oneself and judging the conduct of others. Problem-based learning is a method of instruction that was pioneered at McMaster. Its underlying principles focus on training students how to integrate knowledge into practice through applying a specific method of problem solving. This method is understood as a technique that individualizes students as responsible for their own learning, and it is justified by a pedagogy that aims to ameliorate the identified problems of clinical practice. I draw on archival materials from the government, McMaster University, and the Royal College of Physicians and Surgeons of Canada to show how the McMaster curriculum made it possible to reconceptualize the responsibility of physicians to keep up with knowledge production and, in so doing, opened up new opportunities for medical regulation. On finishing this chapter, readers should understand how problem-based learning responsibilized the newly conceived student of medical education.

[Chapter 4](#) links changes in medical education with emerging methods for regulating physicians once they have completed their training. Regulation is, according to Rose and Miller (1992, 181) a “problematizing activity” – it seeks to identify the problems of medicine, which have been predominantly associated with clinical judgment. The regulatory programs that articulate what is desirable – the use of evidence in practice – aim to intervene in a way that is viable: “Programmes ... make the objects of government thinkable in such a way that their ills appear susceptible to diagnosis, prescription and cure by calculating and normalizing intervention” (183). EBM emphasizes the use of the best evidence in clinical practice. But, as spelled out in the medical literature,

evidence and science are always changing – plus, there is so much evidence that it is difficult to know which would best inform clinical decision making. EBM allowed CPGs to become an important part of medical practice. I show how national collaborations between the government and the Canadian Medical Association (CMA) have changed how the medical profession regulates its practitioners. Medical licensing colleges across Canada endorse CPGs and encourage their use in medical practice. By engaging with data from a study of medical disciplinary actions across Canada, I show the effects of the apparatus of EBM, specifically arguing that guidelines are used to regulate physicians. I explain how CPGs are used in medical regulation to normalize professional judgments in the clinic, and this externalizes the judgments of individual practitioners – an effect that I term “deresponsibilization.” This concept is a new contribution to the sociology of medicine. On finishing this chapter, readers should understand not only how EBM allowed CPGs to become the norm in the medical profession but also how CPGs act on the subjectivity of practitioners.

Chapter 5, “The Impossible Clinic,” seeks to explain how the strategic effects of EBM – specifically, deresponsibilization – have been utilized to perpetuate relations of domination. To do this I shift from examining the disciplinary techniques and normalizing relations of the medical colleges to examining the relations of force that allow EBM to keep going despite its antithetical effects on clinical subjectivity and its failure to meet its objectives. Individualizing the problems of health care and reducing them to the judgment of clinicians defines the problem of medicine within the clinic, which, in turn, determines the juridical elements of the policy programs installed in medical education and regulation. Despite the failed effects, this diverts attention away from the potential failure of health infrastructure and focuses it on individual decisions, which require amelioration. These effects are consistent with advanced liberal principles of rule. I conclude by explaining how the concept of responsabilization and Rose’s notion of “ethopolitics” in the sociology of health and medicine

are based on the assumption that individuals “choose to work on themselves” and that they make decisions through addressing a series of choices about how they ought to make judgments about their health. I make an original contribution to governmentality studies and the sociology of medicine in that I show how professional governance strategies in medicine may not require doctors to “think”: rather, they should follow rules, and this represents a failure of professional governance strategies within liberal governmentality. Professional regulation has an effect on responsibility within medicine, and this deserves further attention and research.

The conclusion links Foucauldian genealogy with the sociology of medicine. I close by considering the transformative possibilities of genealogy through a discussion of Foucault’s notion of the specific intellectual and how to practise public sociology in the sociology of medicine.