

The Public Health Agency of Canada's Production of West Nile Virus:
A Foucauldian Analysis

by

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Bachelor of Arts, University of Victoria, 2002

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Abstract

Produced through relations of power, West Nile Virus (WNV) as it exists on the Public Health Agency of Canada's (PHAC) website, is an effect of the kinds of knowledge, techniques of power, and disciplinary apparatuses that operate on the website and in society. Cumulatively, these forces have produced WNV as a bio-socio-administrative construct. With reference to Michel Foucault's relations of power and to Jennifer Gore's operationalization of Foucault's techniques of power, this thesis both describes the PHAC's overall production of WNV and analyzes the production process. This thesis illustrates one way that Foucault's theories of power can be used to conduct a social construction analysis. The study also shows conclusively that power relations are an important factor in the production of newly emergent infectious diseases in Canada. It will be of value to other researchers who are interested in the sociological study of disease, public health, and risk.

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Dedication

I dedicate this thesis to my beautiful community, an inspirational collection of people who generously offered me time, energy, and wisdom as I strove to meet my goals and to learn about life during the process.

Chapter One

Introduction

In February 2000, two years before the first West Nile Virus (WNV) infections in humans were detected in Canada, Health Canada established a West Nile Virus Steering Committee (PHAC, 2005c). The committee continues to stand today and is comprised of representatives from Health Canada, Provincial Ministries of Health, Conservation, Environment, and Natural Resources, the Department of National Defence, Environment Canada, the Canadian Food Inspection Agency, and the Canadian Cooperative Wildlife Health Centre. The federal government instructed this steering committee to develop a pan-Canadian strategy for controlling the spread of WNV in Canada and to ameliorate its impacts once it arrived (Health Canada, 2003a, 2003b, 2003c). On September 24, 2004, amid growing concern about infectious disease epidemics in Canada, and a lack of confidence in the government's ability to respond to them,¹ the federal Liberal government announced the creation of the Public Health Agency of Canada (PHAC)(PHAC 2004a). The government presented the PHAC as a pro-active pan-Canadian public health agency that would address WNV as one of the many newly

¹ For example, in 2002, a civil action lawsuit was filed by a group of forty-nine Ontario residents against the Ontario provincial government. The case was built around the allegation that the government had neglected to inform people of the seriousness of the new WNV threat; a failure that the group claimed led to the death of seventeen Canadians in 2002 alone (O'Connor, 2002). This was a precedent setting court action that opened up the ability of citizen's to hold the provincial and federal governments legally responsible, "within reason," for the public health of Canadians (CTV, 2004).

emergent infectious diseases placed under this new agency's jurisdiction² (Privy Council Office, Canada, 2004; PHAC, 2004a, 2004c; Treasury Board of Canada Secretariat, 2005).

Although citizen and media activity (see Muhammad, 2002; Hawaleshka, 2003; The Toronto Star, 2003; Dale, 2004; CBC, 2006; CTV, 2006) have helped to hold the PHAC's attention on WNV, it is ultimately through the PHAC that a systematized authoritative educational response to WNV has been administered and maintained. As such, the PHAC has played a central role in constructing what kind of a health threat WNV is, as well in articulating its relevance to Canadians. The PHAC's role in the production of WNV became interesting to me when I realized that I had become afraid of WNV infection. I wanted to know, therefore, how I had come to think about WNV, as well as a host of other diseases such as Severe Acute Respiratory Syndrome (SARS) and A H5N1 (Avian Influenza), as dangerous new diseases in Canada. In addition, I became curious about the illness and death rates in Canada due to WNV because these numbers did not seem to justify the systematic and resource-rich governmental, medical, and scientific responses generated by this newly emerging infectious disease.³ Since I decided

² Anthrax, Avian Influenza (H5N1), Cholera, Creutzfeldt-Jakob Disease (CJD)/Variant Creutzfeldt-Jakob Disease (vCJD), Hantavirus, HIV/AIDS, Hepatitis A, B, C, D, E, G, Japanese Encephalitis, Lyme Disease, Malaria, Poliomyelitis, Plague, SARS, and STDS are some of the many diseases that fall under the PHAC's jurisdiction. For a complete list please see the PHAC at <http://www.phac-aspc.gc.ca/id-mi/index.html>.

³ As of 14 October 2006, the 2006 mosquito season produced 123 confirmed human WNV cases [Alberta (24), Saskatchewan (11), Manitoba (50) and Ontario (38)] and one asymptomatic infection [Manitoba (1)] reported to the PHAC. Of the 123 clinical cases, 34 (27.6%) were classified as West Nile Neurological Syndrome, 78 (63.4%) as West Nile Virus Non-Neurological Syndrome, and 11 (8.9%) as unclassified. Two deaths have been reported to date. In the United States, as of 10 October 2006, 3135 human WNV cases [1895 (60%) fever, 1121 (36%) neuroinvasive disease and 119 (4%) clinically unspecified] have been reported to the Centers for Disease Control and Prevention (CDC). There have been 97 deaths reported. The latest PHAC WNV information can be accessed from: http://www.phac-aspc.gc.ca/wnv-vwn/pdf_nsr-rns_2006/wnvnr_200640_e.pdf.

neither to panic about WNV nor to allow the notion that WNV was an imminent and deadly threat shape my thoughts and activities, I set out to learn precisely what WNV was, what it was about WNV that I was afraid of, and, whether the preventative actions I was instructed to take by the PHAC seemed both effective as well as proportionate to the actual threat WNV posed to my health.

To answer these questions, I turned to the PHAC's website. Not only was it the most comprehensive information resource about WNV in Canada, but many other organizations I contacted for information about WNV referred me back to the PHAC. The referrals were not surprising because the PHAC's website provides a wide range of information about WNV to the general public by defining the virus (PHAC, 2003a, 2004e), explaining how it arrived in Canada (PHAC, 2005c), describing the ways in which WNV is a health threat (PHAC, 2004g), conveying statistics on who is more likely to fall seriously ill from WNV (PHAC, 2004d, 2004k), and instructing people in how to protect themselves against infection (PHAC, 2004i). The website also contains health advisories for public servants (PHAC, 2004h), diagnostic protocols for laboratory technicians and medical practitioners (Office of Laboratory Security, PHAC, 2003a; PHAC, 2004h), information for people who work with animals or have pets (PHAC, 2004b), and an epidemiological database titled "*The MONITOR*," which provides up-to-date reports, statistics, and satellite images of WNV infection in birds, mosquitoes, and humans across Canada (PHAC, 2005b).

After carefully reviewing the PHAC's website, I came to understand that the website's authors expected readers to accept as fact a series of ideas about WNV but that, as a reader, I was given means neither to verify the sources of the information nor to

engage with people at the PHAC about what I had understood. It was at this point that I decided to study the PHAC's website and to explore why, even after a careful, albeit unsystematic reading of the website, I still did not have a precise idea about what WNV was or what I was supposed to be afraid of.

Formulating my Research Question

In this thesis I present a study of how the PHAC has used its public information website to develop and distribute a very specific set of messages about WNV. The PHAC's website is an ideal data source because the information presented on it is a distillation of authoritative knowledge about WNV that has been produced by scientific, medical, and public health practitioners and then compiled and subsequently presented by the PHAC to the Canadian public. Analytically, the value of the PHAC's website is that each text contains discursive information about the kinds of ideas that inform the PHAC's response. The texts also show *how* the PHAC's personnel have produced images of WNV as a disease threat. Given my interest in the PHAC's website as a collection of authoritative knowledge about WNV, and given my understanding that systems, structures, and processes play a significant role in the assembling and distribution of that authoritative knowledge through the website, I identified Michel Foucault as the theorist whose work would provide me with the best conceptual tools for researching this data source.

In particular, I felt that Foucault's notion of power as a series of forces which play out through social relationships and structures would be useful. In Foucault's words, "power is a whole set of instruments, techniques, procedures, levels of application, targets; power is a 'physics' or an 'anatomy' of power, a technology" (1995, p. 215).

More specifically, Foucault sees power as an overarching physics or technology, enacted in the empirical world (see 1980b, p. 140) through specific techniques, such as surveillance, individualization, totalization, classification, normalization, exclusion, regulation, and distribution. Through reading the website, I could see Foucault's techniques at work in the PHAC's texts. At times, I read messages that seemed like they were not only intended to educate the reader but also designed to change the reader's opinions and behaviours vis-à-vis WNV. Other times the techniques were less visible, as was the case with the website's exclusion of "inferior" preventative strategies. Still other times, there was a noteworthy overlap between the vocabulary Foucault uses to describe techniques of power and the terminology the PHAC uses to describe its own activities. For example the terms surveillance, regulation, and classification often appear on the website. Once I had identified the PHAC website as an ideal data source and confirmed that I could both read the website through Foucault's notions of power and see examples where techniques of power were at work in the production of WNV, I launched my research project. The question, "how has the PHAC used techniques of power to produce WNV through its website?" has guided me within this study.

Locating my study of West Nile Virus within the Social World

The scope of this project is limited to an investigation of the PHAC's production of WNV on its public information website for two key reasons. First, the PHAC's website is the resource the Canadian government, media, and medical practitioners encourage the public to consult. This referral process has contributed to the PHAC's website becoming an authoritative public health resource on WNV in Canada. Second, and more generally, due to the broad range of users who access the PHAC's website, this virtual space now

plays a central role in framing public health issues, distributing authoritative sets of information about diseases, informing citizens about how they can best protect themselves against serious health threats, and, perhaps ironically, raising anxiety about the proliferation of new health risks. In short, studying public health websites, such as the PHAC's, is valuable because of the role virtually accessed information plays in producing not only authoritative knowledge but also concerned citizens with a vested interest in specific public health campaigns. I anticipate, therefore, that my analysis of the production of WNV on the PAHC website will generate critical analytical tools that I and others can use later to study the PHAC's construction of other 'newly' emerging infectious diseases. I am referring to diseases cast as public health threats such as Variant Creutzfeldt-Jakob Disease (Variant CJD), found for the first time in Canada in April 2002 (see PHAC, 2006a); SARS, first detected in a person in Canada on February 23, 2003 (PHAC, 2006b); and Avian Influenza, anticipated by Canadian health officials to cause a global pandemic (PHAC, 2006c).

The methodological use of power is central to my study of how the PHAC's website has produced WNV for three primary reasons. First, placing power at the centre of my study locates the production of WNV within political, institutional, economic, cultural, and social relations of power. Second, highlighting the fact that techniques of power have both discursive and material dimensions draws attention to the discursive and material aspects of the PHAC's production of WNV. Third, emphasizing the importance of power relations within the production of WNV draws attention to the generativity of power/knowledge relations and to how specific spaces, places, individuals, and institutions have contributed to the production of WNV. Further, by importing, from the

discipline of education, Jennifer Gore's (1995) method of operationalizing Foucault's notions of power, I illustrate ways that a Foucauldian-informed post-structuralist methodological approach can be used within sociology. I offer this use of power in particular to researchers interested in the sociological study of disease, public health, and risk. I would like my research, first, to draw attention to the roles the PHAC's mandates and infrastructure play in producing WNV and other newly emerging infectious diseases as health risks, and second, to contribute to a review of the PHAC's interpretation of its pro-active public health mandate, and, third, to support citizen engagement with the PHAC's production and distribution of WNV information.

Precedent for my analytical and methodological application of Foucault's notions of power can be found within social scientific research where power is used to illuminate the study of a variety of substantive issues pertaining to health and disease. I hope, in particular, that my use of a Foucauldian methodological approach to studying the production of WNV will be considered alongside other sociological research on infectious disease threats. In particular, I would like to see my insights into how relations of power produce diseases brought into conversation with studies on fear (Glassner, 1999; Rentschler, 2003), risk (Castel, 1991; Ewald, 1991; Harding, 1997; Petersen, 1997; Turner, 1997; Baker and Stokes, 2004; Bell, 2006), and practices of governmental regulation and control (Gordon, 1991; Dean, 1994; Deleuze, 1997; Brown, Kroll-Smith and Gunter, 2000; Jones, 2000; Evans and Davies, 2002; Lemke, 2001, 2002, 2003, 2004; Aas, 2006).

Outside of the academic arena, people in the civic sphere are also engaging dynamically with the "emergence" of new infectious diseases. In particular, people are

questioning the level of threat that these new diseases pose to the general population and reflecting on the efficacy of institutional responses to those diseases. I am referring here to a gamut of social responses that range from how the institutions of government, professional lobbyists, medical practitioners, chemical manufacturers, media houses, federal budgetary intercessions, and public health infrastructural developments engage with the PHAC's framing of WNV. I am also referring to citizen groups, ecologically-orientated scientific responses, and animal rights activists. I hope that my study will also be useful to these communities as they try to make sense of how disease phenomena are currently being represented and responded to within Canadian society.

Mapping the Thesis

In this thesis, I present my research on the production of the WNV phenomenon on the PHAC's website. In that this is a study both of how the PHAC has produced WNV as well as an illustration of how Foucault's notions of power can be used to study the construction of WNV, each chapter reflects aspects of both projects. To this end, in the second chapter, I outline my theoretical approach to studying WNV. First, I review the features of Foucault's theories of power that I place at the centre of my study: discipline, discourse, and power/knowledge. Second, I introduce Foucault's theoretical understanding of techniques of power and explain why I employ these conceptual mechanisms to analyze the PHAC's website. In chapter three, I describe my methodological approach by first introducing the work of Jennifer Gore, an educational researcher who is interested in issues of power and pedagogy (see Gore, 1993, 1994, 1995, 1997, 2002, 2003, Gore and Morrison, 2001). Gore (1995) has developed a method for using eight of Foucault's techniques of power analytically: surveillance,

individualization, totalization, classification, normalization, exclusion, regulation, and distribution. Following my introduction to Gore, I adapt her method and then provide descriptions for how my amplification of her methodological use of techniques of power enables me to more effectively study the PHAC's website. In chapter four, I present my analysis of the PHAC's production of WNV by describing how each technique of power has produced unique aspects of the WNV construct. I also bring these approaches together through a discussion of three key insights about the ways the techniques work jointly to produce specific dimensions of the WNV phenomenon. In particular, I show that WNV is an effect of the power relations, a construct, and a product of the particular configuration of the PHAC's public health infrastructure as it exists in this moment in time. In chapter five, I conclude the thesis with thoughts on future directions for related research concerning WNV. I comment on how my study of WNV draws attention to specific ways in which institutional responses to biological entities are inextricably linked to relations of power and to the value of studying the production of diseases in an age where health risks are proliferating both inside and outside of Canada.

Chapter Two

Foucauldian Perspectives on Power

Introduction

In this chapter, I present my conceptual approach to studying the Public Health Agency of Canada's (PHAC) production of West Nile Virus (WNV). In that WNV, as an empirical site, can be studied sociologically using an array of theoretical approaches, on the following pages I describe how I employ Michel Foucault's post-structuralist work on power as a method for investigating how relations of power have produced WNV.⁴ Four Foucauldian concepts are particularly relevant to this investigation: 1) discourse, 2) power/knowledge, 3) discipline, and 4) techniques of power. I begin this chapter, therefore, by introducing Foucault's notion of power. Afterward, I weave this conception of power through my discussions of the four Foucauldian concepts above. In each discussion, I draw particular attention to how these concepts are useful tools for thinking about the production of WNV through relations of power. My goal is to lay the conceptual foundation for my analysis and to discuss how particular concepts within Foucault's perspectives on power enable me to think about WNV as a product of the institutional apparatus of the PHAC as it exists in this historical moment.

⁴ Foucault's term *productivity* refers to the generativity of relations of power – how techniques of power produce something other than themselves. In this thesis I treat the term 'produce' as a verb that draws attention to the processes and practices that create WNV.

Power

In one of his final essays, “*The Ethic of Care for the Self as a Practice of Freedom*,” Foucault (1988) underscores the notion that power is relational. He writes, “I hardly ever use the word *power* and if I do sometimes, it is always a short cut to the expression I always use: *the relations of power*” (p. 11). In other words, to Foucault, power does not denote political structures, governments, or dominant social classes. Rather, power is “a certain strength that we are endowed with” (1980b, p. 93) and, on a basic level, a force within human relationships where one person wishes to direct the behaviour of another (1988:11). Thus, substantively, power – *le pouvoir* – does not exist because there is no location from which power is based or emanates. Rather, power “is produced from one moment to the next...in every relation [and] from one point to another” (Foucault, 1980b, p. 93). Stated differently, power is de-centralized into “a more-or-less organised, hierarchical, co-ordinated cluster of relations” (Foucault, 1980a, p. 199). Since power is a cluster of relations, as well as a whole set of instruments, techniques, and procedures (Foucault, 1995, p. 215), power can be studied by looking at the grids – the relationships, structures, and effects – through which it is produced and circulated (Foucault, 1980a, p. 199). In this thesis, I place WNV at the centre of the grid by asking how relations of power construct the WNV phenomenon. Subsequently, I attempt more precisely to understand and define what WNV (as a production of the relations of power) looks like.

Relations of power, to clarify, describe the associations, links, strategic affiliations, interdependence, competition, and investments that people have with one another by virtue of the fact that we are all members of the social world. Relations of power exist within face-to-face relationships between individuals and groups as well as between institutions. Ultimately, relations of power implicate all people, whether they

exist within hierarchical, exploitative, or collaborative relationships between equals. To this end, Foucault suggests that manifold relations of power permeate, characterize, and constitute the social body (1980a, p. 93) and hence it is through relations of power that the world is produced and engaged. Relations of power also shape what is known about WNV as a virus and, more generally, what is known about viral diseases. As a result, in this thesis, I use Foucault's work to sensitize myself to the various activities of the relations of power that produce the construction of WNV as an easily recognizable entity on the PHAC's website.

Power and Discourse

One way that power operates in the social world is by way of discourses and the materialization of discourses through "social practices and specific activities that sustain and reproduce discursive formations" (Moss and Dyck, 2002, p.15). Foucault describes discourses as assemblages of signs and social practices "that systematically form the objects of which they speak" (Foucault, 1972, p. 49). Since a discourse is formed and circulated within a particular historical moment, discourses are loosely structured combinations of concerns, themes, and types of assertions that reflect the epoch within which they emerge (Marshall, 1998, p.163). In a sense, not only does a discourse reformulate a body of heterogeneous ideas from diverse disciplines into a single collection of texts, but it is also a set of ideas that are embodied in "technical processes, in institutions, in patterns for general behaviour, in forms for transmission and diffusion, and in pedagogical forms which, at once, impose and maintain them" (Foucault, 1995, p. 2000).

Discourses command such an important role in the social construction process because they are productive. Foucault draws attention in particular to three ways that discourses produce effects in the social world. First, discourses generate transformations outside of the domain of the discourse, as is the case when a discourse informs the structure of social relationships or the activities carried out through social relations of power. Second, discourses also shift internally under three circumstances: (i) when changes occur in the techniques which determine the object of the discourses; (ii) when new information emerges; (ii) when the guiding concepts within a particular discursive formation change. Third, discourses produce other discourses in an ongoing cycle of cause and effect whereby discourses both shape and are shaped by the social world (Foucault, 1995, p, 200).

In this thesis, I pay attention to the role of discourses within the production of WNV because they are fluid mediums that trigger the production of other discourses. In addition, discourses are the means through which people produce new social realities. To assemble specific aspects of its WNV construction, texts on the PHAC website repeatedly rely on a variety of external discourses pertaining to disease, risk, fear, and discipline. For example, the PHAC uses discourses to define WNV as a virus-causing illness and to strategically produce responsible, healthy people who are expected to enact the PHAC's prevention plans. The discourses the PHAC draws upon to produce "good, healthy citizens" include medical, governmental, and scientific discourses about health, risk, and prevention, which the PHAC links to discourses of responsibility and self-discipline.

On the PHAC website discourses are at once a medium through which the PHAC produces ideas about WNV and simultaneously a mechanism that reveals the construction process (Foucault, 1980b, p.101). As such, the texts on the PHAC website provide excellent material for studying the discourses drawn upon in the production of WNV. In Foucault's words, discourses are both "an instrument and an effect of power [as well as] a hindrance, a stumbling block, a point of resistance and a starting point for an opposing strategy (1980b, p. 101). Given Foucault's description, I read the texts that suggest how individuals and groups should react to WNV as products of the disciplinary activities that are an aspect of the agency's public health response to WNV. I understand, that through a cycle of cause-and-effect that discourses transform, reinforce, and develop particular ideas about this new disease as well the PHAC's responses to WNV.

Power/Knowledge

Foucault's interest in double movements where aspects of the social world simultaneously form and are formed by one another is also exemplified by his notion of power/knowledge. Foucault suggests that it is "in discourse that power and knowledge are joined together" (1980b, p. 100). He uses the term power/knowledge to describe an interlacing where the exercise of power is a force that produces new fields of knowledge, and conversely, that "knowledge constantly induces effects of power" (Foucault, 1980, p.51-2). Given the interconnectedness between practices of power and the production of knowledge, and in order to apply the power/knowledge concept to the study of the production of WNV, it is imperative to determine first the specific relations of power within the production of knowledge and second the ways that knowledge acts as a disciplinary force. Foucault suggests that knowledge – *savoir* – is a collection of

discourses that are transformed into a discrete, identifiable entity through specific relations of power and within particular contexts. Foucault argues that knowledge is not only established in relation to a field of statements made within a particular discipline, but also in relation to “objects, instruments, practices, research programs, skills, social networks and institutions” (Rouse, 1994, p. 110). He labels this formation a ‘field of knowledge.’ After becoming intelligible to the social world through the acquisition of form, knowledge assumes authority as a social entity (Rouse, 1994, p. 95). Classified or regulated knowledge, in particular, reveals the power struggles at work in the knowledge production process. The reason for this is that the decisions to retain or discard specific understandings reflect the biases, agendas, and objectives of those people and structures that are assembling the ‘knowledge.’ Foucault articulates the processes of producing fields of knowledge within relations of power through his distinction between *official* and *subjugated knowledges*. Official knowledge reflects the ideologies and assemblages of ideas and information used to inform politico-epistemic practices. These assemblages produce new kinds of knowledge along with “new objects to know and new modalities of power” (Rouse, 1994, p. 97). Official knowledge is the knowledge that is taught in schools, formally circulated through social institutions, and represented within political, legal, and scientific advisories and debates as valid and reliable. In the case of WNV, the PHAC both draws on and produces official knowledge about the disease on its website. Through its construction of WNV, the PHAC also participates in the delineation of some forms of knowledge as popular and subjugates it as such because popular knowledge (not to be confused with common sense) is low-ranking and often disqualified as knowledge. Information relating to alternate forms of insect control and natural insect repellents

suffers from such a dismissal on the PHAC website. In place of identifying specific kinds of knowledge as an alternative to the website's official discourse the PHAC actually subjugates many forms of knowledge it has labelled as 'popular.' In doing so, the PHAC disqualifies whole sets of ideas as inadequate and naive. The PHAC justifies the subjugation of certain ways of knowing and sets of knowledge on the basis that they are "located low down on the hierarchy, beneath the required level of cognition or scientificity" (Foucault, 1980a, p. 81). By excluding certain knowledge, the PHAC also sends the message that it would be irresponsible for a governmental agency to distribute such knowledge.

The concept of power/knowledge and the identification of official and subjugated knowledges, enable me to think about the production of WNV as a disciplinary practice. Together the PHAC's texts (the discourses) and the techniques of power found within them produce WNV as a social construct that is more than a biological entity and more than an educational or public health entity as well. I can see power/knowledge most clearly within texts on the PHAC website where the production of WNV is linked to efforts to generate specific outcomes, especially the production of healthy citizens who know enough to want to adhere to the PHAC's public health prevention strategies.

In sum, power/knowledge works in at least two nuanced ways on the PHAC website. First, power/knowledge sets the parameters of possibility for the construction of WNV in this particular historical moment. For example, official knowledge constrains how WNV can be constructed discursively (what can be said or known about WNV) and who can be engaged in formal knowledge construction processes. Official knowledge also provides the context within which other forms of knowledge are subjugated.

Second, social practices are contoured by power/knowledge relations because power expresses people's abilities to influence others and knowledge informs how, what, and why people assume particular strategies. In this sense, power/knowledge draws attention to the milieus within which knowledge about WNV is produced. For example, the PHAC's production of WNV occurs within the framework of modern governmentality, the view that knowledge produced through scientific positivism is authoritative, the political context of an era characterized as a risk culture where notions of fear, threat, and disharmony circulate widely, and a worldview that links pandemics to global health insecurity.

Power and Discipline

Foucault characterizes modern societies as disciplinary societies because they achieve social regulation and control through the production and discipline of individuals. The power/knowledge nexus governs disciplinary societies, and the enactment of force often occurs simply through shaping people's thoughts, concerns, interests, and motivations. In other words, through producing and sharing certain worldviews people endeavour to influence and even transform others. These dynamics are played out in informal settings between people who know each other well and in formal settings such as institutional relationships. Once people understand this, the disciplinary practices at work within the relations of power in which they are enmeshed begin to become visible.

Relations of power are inextricably linked to the discipline of populations because relations of power form the mediums through which discipline is imagined, its technologies developed, and its practices enacted. This linkage also exists because relations of power form the institutions, procedures, analyses, reflections, calculations,

and tactics through which discipline is exercised (Foucault, 1991, p.102). Foucault observed that governmental activities often justify disciplinary practices by invoking the notion of the welfare of the population (1991, p.100). In accordance, organizations such as the PHAC employ disciplinary practices to manage populations both on the larger scale of the 'the people' as an undifferentiated population as well as on the smaller scale of groups and individuals. The more discrete the grouping, the more intensive and detailed the PHAC's disciplinary strategies for managing the population can be (see Foucault, 1991, p. 102). An important aspect of discipline as it is enacted in the modern world is people's voluntary participation in disciplinary practices (Foucault, 1984b, p. 337-8; see also Foucault, 1984a). People's participation in the PHAC's WNV response is inspired, therefore, by the knowledge that they acquire through reading the PHAC's literature on how to enhance their own well being in relation to WNV. Consequently, in order to understand the key role that disciplinary activities play in the PHAC's response to WNV, it is important to understand the relationship between discipline and power in contemporary society.

The concept of discipline sensitizes me to three ideas in particular. First, because the PHAC is the administrator of the WNV response, the agency's production of WNV is linked to governmental approaches to promoting the welfare of the population. Second, given this governmental affiliation, the subtle disciplining of the individual must be at work in the production of WNV. I am suggesting here that relations of power not only depend on disciplinary tactics to keep people safe, but also use discourses surrounding WNV as a tool within their disciplinary practices designed to protect people and the nation-state. Finally, given the variety of individuals, institutions, practises, and agendas

involved in the production of WNV, WNV's meaning must be permuted by each relationship of power involved in its production. In this case, WNV is both an instrument of, but also instrumental to, the practice of discipline within relations of power and their roles within the PHAC's production of healthy Canadians.

Technologies of Power and Techniques of Power

In the *History of Sexuality, Vol. I*, Foucault suggests that the exercise of power is a technology that assembles various techniques into a single machinery (technology) (1980b, p. 140). Technologies operate on the scale of institutions and governments by combining various elements of social and economic reality, according to specific-sets of rules, and in order to control populations (Ewald, 1991, p. 197). Techniques, on the other hand, are mechanisms, procedures, tools, and skills that turn discipline into the art of delicate and detailed transformations. The purpose of these manipulations can be to craft a public health regime that produces healthy individuals. Though there are multiple techniques through which power as a technology is enacted, Foucault's work draws particular attention to the techniques of surveillance, individualization, totalization, classification, normalization, exclusion, distribution, and regulation (see Gore, 1995). Although each technique of power functions in a unique way, when they work together these mechanisms form "a closely linked grid of disciplinary coercions whose purpose is in fact to assure the cohesion of the social body" (Foucault, 1980a, p. 106). On the PHAC website, therefore, when reading techniques of power as producing WNV, it is possible to see how specific disciplinary coercions are central to the PHAC's institutional responses to infectious diseases and how these responses are dependant upon a cohesive representation of WNV as a public health threat.

The central tenet of this thesis -- that it is possible to study mechanisms of power through noting how they function within relations of power (see Foucault, 1980a, p. 39) -- is also substantiated by Foucault's observation that techniques of power are at work throughout (disciplinary) society because they operate across scales that range from i) the macro-or structural scale through to the ii) micro- or individual scale (see Rouse, 1994, p. 95). Perhaps for this reason, Foucault describes a swarming effect that transforms "local exercise[s] of force within the confines of a particular institution into far-reaching relationships of power" (Rouse, 1994, p. 106). Therefore, whether by way of his notions of discourse, power/knowledge, or discipline, Foucault emphasizes that the social world both shapes and is shaped by specific activities that can be observed (Turner, 1997, pp. ix-xxi).

Linking Theories of Power to the Study of West Nile Virus

Foucault's theories of power draw attention to the mechanisms that produce social phenomena. Congruently, on the PHAC website, techniques of power empirically reveal how WNV has been produced because techniques of power are both conceptual abstractions and concretely enacted within the social world. In order to be reflective of key concepts within Foucault's perspectives on power, the central problematic for this study shifted from being a question of whether WNV is a construct of the PHAC to a more nuanced question of how to use techniques of power analytically to study the production of the WNV phenomenon. Asking the latter question, and conceptualizing WNV with Foucault as a set of ideas and practices about WNV generated by the PHAC, led me to select a method that transformed Foucault's theoretical perspectives on power

into an analytical tool. In the next chapter I describe one method that I found which enabled me to use techniques of power to study the PHAC's textual production of WNV.

Chapter Three

Methodology

Overview

In this thesis my project is to study the role of relations of power in the Public Health Agency of Canada's (PHAC) production of West Nile Virus (WNV) and to explore one method for undertaking this study. In this chapter I develop my methodological approach to the question of how WNV has been produced on the PHAC's website by operationalizing Foucault's notion of power. The system I use for thinking about power as a conceptual tool is based on the work of Jennifer Gore who identifies, categorizes, and operationalizes power in terms of the eight techniques of power that she sees as central to Foucault's work.

As I saw it, the major techniques of power which Foucault posited as characteristic of modern society and its institutions were surveillance, normalisation, exclusion, classification, distribution, individualisation, totalisation, and regulation. I examined my data for the existence and operation of these techniques of power in each site. These categories were useful for their capacity to address issues about power and pedagogy which have been raised in literature on radical pedagogy. Additionally, through their decontextualised derivation, they leave open other rhetorical options which will enable response to the fields of social analysis and philosophy, as well as educational policy and practice, on a scale much larger than the "local" site. (Gore, 1997, p. 2)

Gore's methodology sensitized me to the ways that techniques of power can be used to recognize the existence, dynamics, and productive activities of power relations within empirical settings. Her method also offered me a concrete foundation from which to embark on my analysis of the PHAC's WNV website.

Data

Data for this study consists of key administrative texts produced by the PHAC's Steering Committee on WNV http://www.phac-aspc.gc.ca/wn-no/index_e.html and by the First Nations and Inuit Health Branch (FNIHB) http://www.hc-sc.gc.ca/fnih-spni/diseases-maladies/wnv-vno/index_e.html. I include a small number of texts in my data set from the FNIHB website because on the PHAC website these texts are referred to as part of the PHAC's WNV educational campaign, even though it is the FNIHB website that hosts these documents. The sharing of textual resources between the PHAC and the FNIHB makes sense because both agencies report to the Minister of Health and function as Health Canada agencies that specialize in specific areas of health delivery in Canada. In this thesis I present my work as an analysis of the PHAC website, and not of the FNIHB, because I only access the WNV texts available on the FNIHB website that the PHAC has a) identified as part of their campaign, and b) hyperlinked directly to the PHAC website.

In total, there are forty-nine documents in my data set. The PHAC's West Nile Virus (WNV) website homepage is my first document and my next nine documents are the home pages of each sub-directory on the website. Each sub-directory is accessed from a menu bar on the homepage and offers links to further documents on the subject. PHAC titles for the main pages of the sub-directories and the number of documents contained within each sub-directory are as follows: a) *symptoms* with one supporting document; b) *general information* with four associated documents; c) *protect yourself and your family* with four topical documents; d) *First Nations* with seven supporting documents; e) *animals* with three topic specific documents; f) *surveillance* with one information document; g) *maps & stats* with four supporting documents; h) *public education*

resources with twelve additional educational texts; i) *media* with three other media-related documents; and j) *links* with one related document.

Contextualizing the Data

In that the PHAC collaborates in the national and international arena with governmental, scientific, and public health agencies, the PHAC's production of WNV is linked to and contextualized by diverse social, political, economic, cultural, and biological activities. Given these interrelationships, I felt it was important to understand how the PHAC's production of WNV corresponded with ideas about WNV being produced by other social institutions. In order to contextualize the PHAC website, I read and reflected on (but did not code) my observations about the construction of WNV on other websites. Between April 2005 and September 2006 I used a service provided by Google called "Google Alerts" in order to assist me in conducting a systematic reading of the ways in which newspapers, magazines, blogs, and journal articles that had been posted to Google during that time period were represented within my WNV study. I set the criteria for the "Google Alerts" searches by asking only for texts containing the key words *West Nile Virus*, *Public Health Agency of Canada*, and *Public Health*. I also contextualized my study by reading websites I found on the World Wide Web using the search phrase *West Nile Virus*. Gaining an impression about WNV from these additional sources of information helped me to see that the PHAC's representation of WNV is similar to the way other institutions, agencies, and community groups, both within Canada and across English language websites internationally, have represented WNV.

Data Management

I used the qualitative data management software QSR NVivo to code, analyze, sort, and store my primary data as well as the results of my coding activities. I also made a paper copy of the forty-nine documents in my data set which has proved useful for comparing my data set to the updates on the PHAC website and to gain a visual sense of the formatting and iconography of the web texts. NVivo is a useful qualitative data management system for a variety of reasons. In general, this program offered me the ability to analyze texts individually as well as to place my data into sets so that I could think about my coding and analysis relationally. NVivo also enabled me to produce an index of my documents and codes and to generate reports on all of my coding activity using a range of filters. For example, one such filter was able easily to report how many times I had coded a particular document or how many times I had coded for a particular node (the NVivo term for code) throughout my entire dataset. NVivo also allowed me to produce graphs of my coding activities in order to derive a visual sense of my data and my analysis. NVivo also facilitated the process of coding. Using NVivo I was able, for example, to begin with my eight techniques of power, and as codes emerged through my reading of my data, to add “coding trees” (list of codes) as well as “child codes” (sub-codes). Through this process, I gradually constructed a coding scheme that was not only systematically organized but was also represented visually as a tool bar along the right hand margin of my screen. In short, NVivo enabled me to be organized and systematic in each step of my coding process and to quickly and effectively organize, order, compare, and contrast my data without becoming overwhelmed by the volume and complexity of the texts on the PHAC’s WNV website.

Analysis

Jennifer Gore's Analytical Categories

Jennifer Gore bases her understanding of techniques of power on Foucault's *Discipline and Punish: The Birth of the Prison* (1995). Gore refined her use of techniques of power as a methodological tool in her own studies in pedagogy and education. A theme that runs through Gore's work is her reliance on Foucauldian perspectives of power to analyze the ways theoretical frameworks are used to develop and critique educational structures, the relationships between teachers, students and administrators, and critical pedagogies. For example, Gore uses Foucault's concept of disciplinary power and regimes of truth to critically analyze how Feminist, Critical and Frierian pedagogies reproduce inequities as well as promote social change within educational settings (see Gore, 1993, 1994, and 1995). Based on findings from her work in various empirical settings within the educational system, Gore asserts that Foucault's techniques of power are useful tools for studying relationships between bodies, pedagogies, power relations, regimes of truth, educational theory, and the various ways all of these people and practices interrelate within contemporary educational settings. Below, I outline my understanding of Gore's eight techniques of power as she presents them in her text "*On the Continuity of Power Relations in Pedagogy*" (1995).

Surveillance

Gore suggests that the technique of surveillance is used productively within disciplinary practices to both control and facilitate people's adherence to specific social and institutional practices (1995, pp. 160-1). In modern disciplinary societies, nation-states as well as citizens conduct surveillance. Foucault suggests that disciplinary power is exercised in ways that make it difficult for the subjects being watched to detect that they are being observed, and yet, surveillance requires these same subjects be visible to the

disciplinary gaze at all times. Foucault holds that the subject's "visibility assures the hold of power that is exercised over them. It is the fact of being constantly seen, of being always able to be seen, that maintains the disciplined individual in his subjection" (Foucault, 1995, p. 187). Foucault's famous example of disciplinary surveillance is Jeremy Bentham's Panopticon (1843). Foucault argues that the major effect of the Panopticon is to induce "a conscious and permanent visibility that assures the automatic functioning of power" (1995, p. 201). Within surveillance, a subject also becomes a person who watches and regulates, not only others, but also herself/himself (see Foucault 1980a). Furthermore, surveillance is a technique that generates hierarchies, for example between the watcher and the watched, as well as levels certain hierarchies in moments when the watcher is also placed under surveillance. In Foucault's framing, surveillance focuses on details with no detail being too minute to observe and document, including the minutiae of individual's attitudes, movements, attire, hygiene, sexual practices, modes of interaction, and deference to authority. The technique of surveillance is also linked to the use of technology. On the PHAC website the technique of surveillance is evident within texts where citizens are asked to look out for and report dead birds (especially crows), as they may be a sign of the presence of WNV in the neighbourhood. In this case, surveillance is also linked to the production of knowledge as illustrated by the process where citizen reports are treated as epidemiological data, entered into a WNV virtual database, and manipulated within mathematical models designed to predict the location and severity of the next WNV outbreak.

Normalization

Within a modern disciplinary society, norms are mechanisms of disciplinary power that function through judgments, the fear of being judged, and the effects of (the punishments affiliated with) being judged. Foucault suggests that “the perpetual penalty that traverses all points and supervises every instant in the disciplinary institutions compares, differentiates, hierarchizes, homogenizes, and excludes. In short, it normalizes” (1984a, p. 195). For example, on the PHAC website the message to use DEET is normalized through the repetitive promotion of the notion that one of the most important things a person can do is to avoid being bitten by a mosquito, and one of the most effective ways to achieve this, is to wear insect repellent containing DEET. To this end, parents are encouraged to apply products containing DEET to their children’s skin; children are prompted to ask their parents to help them apply insect repellent. People in general are instructed to use products with DEET. There are also instructions for how to use DEET safely, reports about the latest health studies about using DEET, as well as endorsements of the use of DEET in the medical texts, workplace advisories, and the public education campaign materials. The consequences of not using DEET are also outlined on the website. The primary consequence stated for not following the PHAC’s advisory is that ‘people’ will not be able to create a chemical barrier between themselves and mosquitoes and in failing to do so are inviting being bitten by a mosquito carrying WNV.

Exclusion

Exclusion marks the reverse side of normalisation in that it defines the pathological. Although defining the normal logically comes before defining the pathological, empirically the pathological comes first (Gore, 1995, p. 174). In other words, there is a sense within social practices that things are excluded on the basis that they are pathological; however, in order to determine who or what is to be excluded, there must

first be a criterion of normalcy to guide this evaluation. In that power is productive, exclusion does not necessarily demarcate a negative process but rather points to moments where exclusionary practices are enacted. For example, the PHAC website repeats the message that it is desirable to exclude the threat of WNV from Canada. In this case, the PHAC's exclusionary agenda is described as a public service intended to improve the health and safety of Canadians. The control of mosquitoes, and ideally their eradication in areas populated by people, is engineered in the name of protecting human health.

Classification

Classification refers to a constellation of practices that range from categorizing and ordering to ranking and regulating people, knowledge, places, and practices. There are many methods that can be used to classify ideas and things, including categorization, ordering, organizing, pigeonholing, essentializing, stereotyping, classifying, sorting, and grading. A product of classification is that that which has been folded into the technique is organized into discrete categories. Within the social context classification is often linked to the production and reproduction of hierarchies. On the PHAC website knowledge, individuals, groups, and practices have been classified. For example, the PHAC's "Fight the Bite!" campaign is comprised of brochures, posters, radio manuscripts, and television ads. One of the classificatory mechanisms at work in this public health literature is the concept of gender and in particular the binaries between traditional male and female roles as it applies to the division of labour and social responsibilities within Canadian society. For example, traditional gender roles are reified by presenting women as parents, people who apply DEET to children, and cooks and by representing men as scientists, doctors, homeowners, and hunters. In addition, there are many references throughout the website to pregnant and breastfeeding women. Within

these texts, pregnancy is classified as falling under the jurisdiction of medicine by urging women who have any concerns about WNV and pregnancy to contact a medical practitioner immediately. In addition, the pregnant body is classified as potentially pathological because there are cases where women have transmitted WNV to their fetuses and breastfeeding infants. Through classifying roles and responsibilities according to gender, the PHAC organizes some of its WNV prevention material into two discrete categories, creates sets of prevention material that can be targeted at specific groups, and reinforces a gender classification scheme that is at work in the social world writ large.

Distribution

In the sense that classification is a conceptual process, distribution is a spatial one.

Distribution is a disciplinary technique that orders social relationships spatially and organizes material entities, including people and buildings, within time and space as well as discursive activities. Distribution can be used analytically to draw attention to the materiality of discursive activity within power/knowledge relations as well as to the ways that discourse contours the material world. When distribution occurs through power/knowledge relations that involve the spatial arrangement, isolation, separation and ranking of people, places, and ideas, we can see how this technique contributes to the functioning of disciplinary power (Gore, 1995, p. 176). For example, knowledge about forms of insect repellent that do not contain DEET is not distributed throughout the website. Rather, the idea of using lavender oil, citronella, and chemical repellents without DEET is first debunked and then dismissed. As a result, any information not formally sanctioned by the PHAC cannot be accessed through the WNV website and certainly the

ideas presented in these 'alternative' forms of knowledge are not used within the texts on the site.

Individualization

By the technique of individualization, Foucault is referring to the role individuals play in the circulation of power. Foucault sees individuals as products of expressions of power; "as vehicles of power, not its points of application" (Foucault, 1980a, p. 98). In other words, individuals are not an "elementary nucleus, a primitive atom, a multiple and inert material on which power comes to fasten or against which it happens to strike, and in so doing subdues or crushes individuals" (Foucault, 1980a, p. 98). Rather, individualization refers to the process where physical form is characterized, made visible, and set up as a conduit of power. Metaphorically, Foucault uses the concept of a chain where each link is an individual who is produced through a disciplinary gaze that is not interested in controlling the population en masse, but rather, is invested in the production of specific kinds of citizens. In that power is relational, and comes from everywhere, individuals are not only the products of power but are also "always in the position of simultaneously undergoing and exercising this power" (Foucault, 1980a, p. 98). For example, individualization is a mechanism that enables the PHAC to test the efficacy of its WNV prevention program. In this case, individuals are produced as discrete units of measurement. In 2004 a Canadian Communicable Disease Report on WNV published data from a statistical survey of individual's impressions about the efficacy of the PHAC's response to WNV and the degree to which the response had shifted people's thoughts about and behaviours towards WNV. In producing the individual, the PHAC had created another method for reproducing and refining its own practices.

Totalization

Gore defines totalization as the specification of collectivities (1995, p. 179-180). A

collectivity is totalized when it is made tangible, recognizable, and solid enough to be interacted with. An effect of totalization is that collectivities are made readily recognizable and can then be taken up within other techniques of power. Predominantly, totalization is a technique of power used for governing and regulating groups as well as for producing knowledge. Totalization is also a technique used by individuals or groups of individuals for their own ends, such as by those who identify themselves as part of various collectivities. As a strategy, totalization is most closely linked to normalization which, when taken up together, are useful to the apparatus of discipline. A very clear technique of totalization within my data set is the PHAC's grouping of "First Nations and Inuit peoples" as distinct (and separate) from the "General Population" in order to systematize its distribution of information to a wide range of community groups.⁵ Most generally it is a grouping expressed by placing WNV information for the two groups on separate websites and by customizing the prevention message to each group. The totalization of the two groups is produced discursively by characterizing the groups in different ways. For example, within the prevention instructions the First Nations and Inuit peoples are characterized as being responsible for their homes, tents, and hunting shelters as well as old tires and small boats (FNIHB, 2005a). In contrast, the General Public material makes the rest of the Canadian population responsible for their homes and vacation property as well as for water in flower

⁵ The categorization of First Nations and Inuit peoples as distinct from the general Canadian public reflects most immediately the organizational structure of the Federal Government's Public Health Ministry which maintains a separate First Nations and Inuit Health Branch (FNIHB). The precedent for this was set in 1945 when Indian Affairs transferred the First Nations health portfolio to Health Canada (it was not until 1962 that Health Canada provided direct health services to First Nations peoples on reserves and Inuit in the North) (Health Canada, 2006).

pots, pools, old tires, wading pools, bird baths, and ornamental ponds (PHAC, 2005d). Comparing the material produced for the two groups demonstrates that totalization is a technique that not only produces groupings and characterizes them but serves an instrumental purpose within the distribution of the WNV campaign material. Once totalized and characterized, groupings can be submitted to other techniques of power such as regulation, classification, and exclusion.

Regulation

All the techniques of power have regulating effects in that they play a role in directing, guiding, instructing, and ruling individuals, groups, thoughts, knowledge, and behaviour. The technique of regulation, however, refers to explicit and formalized expressions of regulation. Gore defines regulation as “control by rule, subject to restrictions, invoking a rule, including sanction, reward, and punishment” (1995, p. 180). Disciplinary society has a unique approach to regulation – one which uses specific forms of knowledge, such as scientific knowledge, to justify the existence of a regulation. An effect of basing regulatory practices on specific forms of knowledge is that people are asked to participate in the enforcement of regulatory practices on the basis that they are designed to benefit both the individual and society at large. The enforcement of regulatory practices is, therefore, undertaken in the name of public safety and health by officially recognized regulatory agencies and their representatives and agents. For example, on the PHAC website there are many references to the regulation of the Canadian blood supply. WNV was discovered to have infected people who had received blood transfusions and along with this came the realization that WNV could be transmitted to other humans through organ transplants, laboratory accidents, handling infected tissues, and body fluids. The

PHAC response has been to establish a regulatory protocol for Canadian blood services in the name of preventing human to human modes of WNV transmission.

Reflecting on Gore's Eight Techniques of Power

In my research I found Gore's categorization of the techniques of power useful.

However, once I started using Gore's categories to analyze my own data, I wanted to know more about how the techniques of power actually worked. Gore isolates the eight techniques that she saw appearing as specific mechanisms through which disciplinary power was enacted both in Foucault's work and in her own studies on the education system. Her definitions, and examples of how she uses the techniques, suggest that they work in different ways depending on the context, the data, and the disciplinary agendas being studied. For example, within the context of the PHAC, surveillance is a technique that produces nation-wide mosquito screening studies and at other times is enacted as self-surveillance where an individual assumes responsibility for tracking her or his own bodily activities and functions. Given the wide range of applications of each technique, I realized I needed to elaborate upon Gore's tools in specific ways so that I could make sense of my own data.

Adapting Gore's Eight Techniques of Power

To adapt Gore's analytical categories for my study of how relations of power shaped the construction of WNV on the PHAC website, I studied Gore's writings and Foucault's works on power – particularly in *Discipline and Punish* (1995) and *Power and Knowledge* (1980a).

Phase One: Do the Techniques Apply to the Public Health Agency of Canada?

I read the PHAC website through the eight techniques of power and learned that the techniques are a good tool for describing the production of WNV. Using the general

categories of surveillance, normalization, exclusion, classification, distribution, individualization, totalization, and regulation enabled me to identify moments when one technique was at work but it did not permit me to describe how it worked, who the players were in a particular relation of power, nor identify the effects of a particular production of WNV. For example, the exclusion of information about WNV, based on scientific knowledge, has the effect of endorsing the use of insect repellents and excluding the use of products that did not contain DEET, such as lavender and citronella. Given the multiple effects of techniques of power, such as exclusion, I needed a way to describe more accurately the various ways the techniques function.

Phase Two: Clarifying how the techniques work theoretically

My next task, then, was to develop sub-categories for each technique of power so that I could describe the actual activities involved in the enactment of a technique and its multiple effects. I returned to Gore and Foucault's theoretical work on power and made note of descriptive words and phrases that illustrated moments when a technique was being used to produce an effect. I intentionally left the descriptive words and phrases open-ended so that I could see relationships and practices as techniques of power that I might not have otherwise noticed if I had approached my data with well defined categories. For example, I observed that classic surveillance occurs in moments where there is:

- Reporting, and I asked to, for, and about whom?
- Charting, and I asked to, for, and about whom?
- Monitoring behaviour, and I asked whose behaviour, for whom, and by whom?
- Monitoring bodies, and I asked which bodies, for whom, and by whom?
- Singling out particular people, groups or practices, and I asked for, and by whom?
- Coordinating surveillance information, and I asked for and by whom?

I then compiled these terms and questions into a keyword index for each micro-technique of power. I also raised a number of questions that pertained to each technique of power.

For example with classic surveillance I asked:

- Surveillance of what or whom and by whom?
- Is there a continuous gaze?
- What is being limited?
- Are docile bodies created?
- What kind of obedience is being asked for?
- What agencies, people, activities, practices are developed and used to do the scrutinizing?
- What kind of self-surveillance is being asked for?
- Are there consequences or punishments or suggested consequences for not following the practices being monitored?
- Are any forms of resistance acknowledged, offered? For example, are alternate practices offered?
- Are there any statements of the experience of being under surveillance?
- What are the positive effects of the surveillance?

I subsequently used these keyword indexes to re-read the website, this time with the goal of making concrete analytical categories for each technique and its micro-applications.

Phase Three: Defining the Micro-techniques

Using my key-word indexes and theoretical questions, I read systematically through the website once again. I realized that some of the ways Gore had seen a specific technique functioning in her research did not directly apply to my data. For example, Gore was working with people and I was working with texts. Gore was studying the ways the techniques of power were enacted through, between, and upon bodies and I was looking for ways the techniques organized ideas about WNV and discursively constructed a WNV phenomenon. The outcome of my reading was that I amassed a detailed coding instrument that contained a long list of ways in which a technique operated on the PHAC website. Developing this coding instrument was an organic process which emerged as I read and re-read the PHAC's texts and coded them using NVivo. Once I had coded all of

my documents, I went through my codes and looked for commonalities between them. I observed that though I had found dozens of ways that each technique of power operated on the PHAC website, I could organize the techniques into three or four sub-categories. I then collapsed my long list of codes into these general categories and created a description of each of the sub-categories for each of my eight techniques of power. Below are the definitions I developed for each micro-technique of power.

Surveillance

On the PHAC website, I identified three forms of surveillance. The first I termed *classic surveillance*, which refers to explicit, hierarchical, state-operated forms of control. The second I termed *surveillance through knowledge*, which refers to the ways in which the knowledge produced through classical surveillance techniques is used on the PHAC website in texts designed to educate the public. The third I termed *relations of surveillance*. Because this is a text-based study, it was not possible to determine the ways in which people actually discipline themselves. It was possible, however, to identify how people are asked to discipline both themselves and one another – especially as it pertains to shifting the public's attitudes and behaviours towards WNV.

Normalization

In the context of the PHAC WNV website I found there were three aspects of the normalization process. The first pertained to *defining the field of normalcy*, which refers to the techniques, people, and resources used to determine what falls inside and outside of the realm of *normal* thoughts, ideas, and practices. The second pertained to the *content of normalcy*, by which I mean the types of knowledge, practices, and relations that have been actively defined as normal. The third pertained to the *reproduction of normalcy*, which refers to the methods used to replicate social norms and to ensure that they are not

unsettled or dramatically reconceptualized by practices or people lacking the social authority to reshape practices.

Exclusion

In this study I found three types of exclusion. *Conceptual exclusion* refers to the exclusion of specific ideas, concepts, and words. *Physical exclusion* occurred when specific bodies or groups of bodies are marginalized. This is an effect accomplished by defining certain bodies as threatening and as requiring removal from specific spaces or places. *Geographical exclusion* refers to the exclusion of particular spaces, places, and environments on the basis that particular places are pathological.

Classification

In this study I investigated four aspects of classification. *Methods of classification* refer to techniques that are used to sort, categorize, and order material. *Classification of knowledge* refers not only to what kinds of knowledge are being classified but also to how specific forms of knowledge are ranked in relation to one another. *Classification of bodies* refers to the sorting and ranking of bodies through the use of discursive, institutional, or scientific protocols. Finally, the *effects of classification* refers to the elements, activities, relationships, material, and discursive products that emerge out of particular classificatory processes.

Distribution

I found distribution to function in three ways on the PHAC website. The first was the *distribution of material forms*, which I used to refer to how bodies and buildings that are linked to how the PHAC's responses to WNV are placed and spaced. The second was the *distribution of power/knowledge*, which I used to refer to the allocation, exercise, retention, and circulation of power - defined here as the ability to make others do as one bids - within the PHAC's WNV communication and response network. The third was the

effects of distribution, which I used to look for what kinds of discourses, architectural projects, and public health practices were produced through the PHAC's utilization of the technique of distribution.

Individualization

On the PHAC website I saw individualization at work in three ways. The first was the *individualization of subjects* through which the subjectification process occurred. The second was *individualization as method*, which I saw as a technique of power that identified and targeted specific individuals on the website. The third was *individualization as action*, where specific responsibilities were delegated to particular individuals on the website.

Totalization

On the PHAC website I saw totalization occurring in three ways: the *totalization of groups*, which refers to the linguistic structuring of groups and the assigning of common characteristics to them; *totalization as method*, which, as in the case of individualization, identifies and targets specific groups; *totalization as action*, which refers to the strategy of positioning specific groups within power-knowledge relations and, based on these groupings, delegating specific groups with particular roles and responsibilities.

Regulation

In approaching regulation as a technique of power on the PHAC WNV website, I found four types of regulation at work. *Subjects of regulation* drew my attention to the people, subjects, activities, and forms of knowledge and practice that were being formally regulated. *Formality of regulation* drew my attention to the kind and force of specific regulations and regulatory practices. *Rationale for regulation* drew my attention to the power/knowledge relations at work in a particular situation. Finally, *apparatuses of*

regulation drew my attention to the organizations, individuals, and groups involved in specific regulatory processes.

Phase Four: Putting the Techniques of Power to Work Analytically

Once I developed the codes for the micro-techniques discussed above, I reviewed the analysis I had already completed. At this point I was able to see the relationship between techniques of power as well as to see how they work together to construct a specific set of ideas about and practices surrounding WNV. In that there are often multiple techniques of power working simultaneously, I often recoded the same section of text using different techniques of power. I found that by using the micro-techniques, I was able to describe the subtleties at work within specific relations of power. For example, within the sample text below, I found the following techniques of power at work:

What are the chances of getting sick from WN virus?

For most people, the chance of getting sick from WN virus is small. Even if the virus is known to be active in your area, only a small percentage of mosquitoes is likely to be infected. This means the risk of a bite from an infected mosquito is low. Most people who get infected do not become seriously ill. Less than 1% of persons infected with West Nile virus will develop severe illness. While persons of any age or health status can be at risk of serious health effects associated with West Nile virus infection, the overall risk of serious health effects increases with age. It is important to know if the West Nile virus is active in your neighbourhood or area to understand your level of risk. This information can be obtained from your local public health authority. (PHAC, 2004e)

Classic Surveillance: It is important to know if the West Nile virus is active in your neighbourhood or area to understand your level of risk. This information can be obtained from your local public health authority.

Surveillance through Knowledge: It is important to know if the West Nile virus is active in your neighbourhood or area to understand your level of risk. This information can be obtained from your local public health authority.

Content of Normalcy: For most people, the chance of getting sick from WN virus is small. Even if the virus is known to be active in your area, only a small percentage of mosquitoes is likely to be infected. This means the risk of a bite from an infected mosquito is low. Most people who get infected do not become seriously ill. Less than 1% of persons infected with West Nile virus will develop severe illness. While persons of

any age or health status can be at risk of serious health effects associated with West Nile virus infection, the overall risk of serious health effects increases with age. It is important to know if the West Nile virus is active in your neighbourhood or area to understand your level of risk. This information can be obtained from your local public health authority.

Reproduction of Normalcy: This information can be obtained from your local public health authority.

Classification of Bodies: While persons of any age or health status can be at risk of serious health effects associated with West Nile virus infection, the overall risk of serious health effects increases with age.

Effects of Classification: It is important to know if the West Nile virus is active in your neighbourhood or area to understand your level of risk. This information can be obtained from your local public health authority.

Distribution of Power: It is important to know if the West Nile virus is active in your neighbourhood or area to understand your level of risk. This information can be obtained from your local public health authority.

Individualization of Subjects: Even if the virus is known to be active in your area; It is important to know if the West Nile virus is active in your neighbourhood or area to understand your level of risk; your local public health authority

Individualization as Method: It is important to know if the West Nile virus is active in your neighbourhood or area to understand your level of risk.

Totalization of Groups: For most people, the chance of getting sick from WN virus is small; most people who get infected do not become seriously ill.

Apparatuses of Regulation: This information can be obtained from your local public health authority.

When I began to write-up my findings, I found that because so much was going on in any one paragraph, it was cumbersome to describe my data according to each of the twenty-six micro-techniques. I decided, therefore, that it was more effective to present my findings under the eight macro-techniques that Gore first presented and to have the micro-techniques inform, as opposed to organize, my presentation.

Phase Five: Reflecting on My Own Work

During my analysis I kept a coding journal for each technique of power and noted my

observations, insights, and curiosities about the techniques and their applications. After I

completed my analysis of the website I coded my research journals in three ways. First, I coded for the eight techniques of power in order to confirm that the characteristics and effects of each technique that I thought I had seen emerge during my analysis were the same ones that I recorded in my research journals. Second, I coded for the main theoretical concepts of this study: power, power/knowledge, discourse, and discipline. My goal was to identify how the relations of power linked to the conceptual areas I was thinking about. I found relationships that I was able to use when reporting my findings. Third, I coded the journals according to the three response areas that also serve as the organizational frames for my data which are: biological responses, social responses, and administrative responses. My goal was to see whether, within a specific area of activity, different techniques were used more frequently or in ways that were not used in other response areas. For example, what kinds of micro-techniques were used within the texts pertaining to medicine and how did they relate to the production of educational texts? More generally, coding my research journals gave me an overview of my analytical process. After coding my own research notes, I felt confident that I understood the primary ways in which the techniques of power I studied had contributed to the construction of WNV on the PHAC website.

Phase Six: Producing Findings

Once I had developed my codes, used my twenty-six micro techniques to conduct my analysis, distilled my findings according to the eight techniques of power, and verified my findings with my research journal, I was ready to describe my findings. To do this, I returned to my observations about how each technique of power had contributed to the production of specific views of WNV, and I brought these findings into conversation with one another. My goal was to understand how, for example, the techniques of surveillance,

normalization, and exclusion had worked together and what kind of WNV the interlacing of these techniques had produced. I played with various combinations as well as investigated the discourses about WNV that appeared most frequently within the texts on the website. The discussion I present at the end of my analysis chapter is the result of this sixth analytical activity.

Limits of My Research

A limitation of my data is that I am only studying texts and am only able, therefore, to analyze the content of the messages as they are presented directly to the general public. Studying the tasks of the multiple authors and the impacts of layers of bureaucratic policies and practices that relate to everything from the format of the web pages, their size, complexity, and use of language is beyond the purview of my study. So too is a study of the laws, legislations, and regulatory mandates that relate to the development and publication of federal government health advisories, mandates, and public health campaigns.

A limitation of my methodology is that techniques of power have a variety of functions within the production of WNV because these techniques tend to be enacted simultaneously in sometimes unstable and ambiguous ways (Gore, 1995: 183). In contrast, my research treats each technique of power as a distinct and static strategy. An effect of this limitation is that I am not addressing the breadth, depth, and complexity of the relations between the techniques of power. One way to convey this complexity would be to conduct both a text-based analysis of WNV as well as to study people's responses to the PHAC's WNV website. In that my study is limited to the textual reality constructed on the PHAC website I can hypothesize about the material effects of this collection of

texts, but I am unable to speak directly about the immediate or long-term impacts of the PHAC WNV website on Canadians or on the fabric of Canadian society.

Ethical Concerns

The main ethical concern I have for my project is that my work will be viewed as a dismissal of the real effects experienced by those who become seriously ill with WNV. I wonder whether this will be interpreted as a callous engagement with an illness that has caused the death of people, birds, animals, and insects the world round. As a person who has suffered from a viral illness myself, I understand some of the significant long-term impacts a viral infection can pose on a person's life. I also know that viruses are invisible to the human eye and that their entry into our physical systems goes unnoticed and their impact, if it is not imperceptible, is often delayed. In this sense, the power of viruses is not in our ability to see and touch their microscopic bodies as they move through time, space, and matter, but it is in how infectious diseases organize, disorganize, and reorganize bodies, institutions, discursive practices, and social relations of power/knowledge. As such, the presence of WNV is known in the social world less often through sickness and death and more often through ideas about risk and fear – the fear that people have of falling ill with WNV or the interactions people have with one another, their health care professionals, governments, and potential vectors in the name of that fear. For those few who fall ill and even die, the power of WNV is in the transmutation of bodies into viral hosts and a source of life.

Chapter Four

Analyzing the Production of West Nile Virus

Introduction:

In this thesis I want to understand how the Public Health Agency of Canada (PHAC) has used its public information website to develop a specific set of messages about what West Nile Virus (WNV) is and what it means to Canadians. The question I have set out to answer is: How have techniques of power produced WNV on the PHAC's website? In order to answer this question, I have operationalized Foucault's notion of 'power' as a series of techniques that play out through social relationships. Consequently, in this chapter I have paid particular attention to how the interrelationships between specific societal practices, governmental structures, and novel health challenges have contributed to the production of WNV on the PHAC website. I have also presented insights that have emerged out of using a post-structuralist approach to power to analyze the production of a disease phenomenon.

In order to conduct a Foucauldian analysis of the role of power relations in the production of WNV, I have stopped thinking about WNV as a biological viral entity and have engaged the idea that, on the PHAC website, WNV is something other than a biological entity; it is a product of social relations. Through this perspective, I approach the texts on the PHAC website as the products of specific activities by PHAC personnel as well as by scientists, medical practitioners, public health officials, and governmental administrators. Additionally, although they have not authored texts on the website, I have seen that a variety of groups, including individual citizens, people who have been

infected by WNV, environmental advocacy groups, concerned parents, and various place-based communities, have informed the PHAC's production of WNV. These groups have influenced the PHAC's construction of WNV through activities such as launching a civil action law suit (O'Connor, 2002) against the government for public health negligence during the WNV epidemic and mounting residential protests about spraying programs (CBC, 2006). While these civic activities are not directly represented or addressed on the PHAC website, they do contribute to a general social ethos within Canada surrounding the emergence of WNV and as such inform the social contexts within which the PHAC is responding to WNV.

Given the heterogeneity of the people and the multiple and uneven social locations of the various contributors to the website content, I have come to think of the PHAC's website as a collection of contributions. The mixed elements that have been used by the PHAC to assemble its WNV response includes institutional mandates, technological innovations, social response patterns to fear, cultural expectations about health, architectural expressions of governmental administration, regulatory decisions, public health administrative practices, and scientific research into WNV. A result of thinking about WNV as the product of a melange of concrete acts and specific forms of knowledge is that I have come to appreciate that not only is WNV an effect of power, but so is the entire process of constructing WNV.

In this analysis I present moments that exemplify how eight techniques of power have contributed to the production of WNV. Recall from the methodology chapter that the eight techniques through which I read the documents on the PHAC website are surveillance, individualization, totalization, classification, normalization, exclusion,

regulation, and distribution. In the first part of this chapter, I review examples of each technique of power as crystallized in the data. In the second part of this chapter, I discuss how these eight techniques of power work together to produce WNV as something other than merely a biological virus. I conclude by considering some of the social implications of such an analysis.

Part One: How Techniques of Power Produce WNV

Surveillance

Given the role of the PHAC as a newly created agency that plays an important role within Canada's health and security planning and given that the PHAC constantly frames WNV as a health risk to Canadians, it is not surprising that surveillance is central to the production of WNV. Surveillance, whether at work on the PHAC website or within other social agencies, is a technique that makes entities visible in order to study, regulate, protect, and control them. The PHAC has established WNV surveillance activities within four arenas: 1) the nation-state, 2) the region, 3) the individual, and 4) the organism. Working within these four arenas, the PHAC has made WNV visible through techniques of observation that track the activities of the people, animals, insects, and environments implicated in the transmission and survival of WNV in Canada. Surveillance has also linked these now observable bodies and places to a range of disciplinary practices (see Foucault, 1995, pp. 170-1).

The key to disciplinary surveillance is an all-seeing, ever-present, disciplinary gaze. Foucault uses Jeremy Bentham's panopticon to illustrate that within disciplinary societies surveillance can take the form of "an apparatus in which the techniques that make it possible to see induce effects of power" (1995, pp.170-1). Within the context of the PHAC, an all-seeing gaze is produced by technologies of observation and networks of

communication that place individuals under observation regardless of their physical location. These surveillance technologies lessen the necessity to regulate and demarcate physical spaces or control the movement of people through them (Foucault, 1995, p. 173). The PHAC rationalizes the role of surveillance in its WNV response by arguing that in order to protect the population and prevent further WNV infection, people, places, and practices must be observed and, if deemed necessary, regulated. A result of the comprehensiveness of the PHAC surveillance apparatus is that the effects of power are taken right into the sphere of the individual making it possible for the PHAC to know and to alter people's (Foucault, 1995, p.172) actions and comportment.

Surveillance is a technique that not only disciplines people but also produces knowledge. To this end, the PHAC conducts surveillance using particular kinds of technologies in order to produce specific forms of information in what I refer to as 'arenas.' The first arena is that of the nation-state. Here, the entire population, and the geographical expanses contained within Canada's borders, are placed under observation. To do this, the PHAC analyzes and displays spatial data using technologies such as satellites and Geographic Information Systems (GIS). Scientists who study patterns of disease development are among those who use GIS technology to produce epidemiologic maps of WNV outbreaks in Canada. After the nation-state, the second arena of surveillance is the region in which the province, municipality, reserve, and neighborhood are put under surveillance. Technologies used in regional surveillance programs include scientists trained in infectious disease surveillance, all-terrain vehicles, digital cameras, Global Positioning Systems (GPS), and hand-held devices that are programmed to record data about WNV infection. As an artifact of surveillance in this arena, statistical

estimations are calculated as to the kind of health threat that WNV may pose in any one area as well as a predictor as to when WNV will next 'emerge.'

The third arena is that of the individual. Within this arena, the PHAC conducts both active surveillance on populations through observation and also relies on populations to observe themselves. Scientists and governmental authorities as well as individuals who turn the disciplinary gaze both onto themselves (self-surveillance) and onto one another (intersubjective surveillance) are the people who conduct surveillance in this arena. For example, within the "Fight the Bite!" campaign, individuals are instructed to watch how they dress and when they go outside as well as to immediately submit oneself to the scrutiny of medical practitioners if specific symptoms manifest. The fourth arena is that of the organism. Surveillance here requires microscopic technology capable of 'seeing' what is happening inside biological bodies. Laboratory technicians conduct front-line testing using a microscope to scrutinize blood samples for the presence of WNV as an RNA virus.⁶ When blood assays do not conclusively locate a WNV virus, physicians conduct confirmatory testing by cross-referencing epidemiological data with laboratory data to confirm that WNV has been active in the geographical area in which a person has been provisionally diagnosed with WNV. Thus, each time they come up with a confirmed or unconfirmed diagnosis of WNV, medical practitioners in the clinic, hospital room, or operating theatre as well as scientists in laboratory settings conduct surveillance on the level of the organism.

⁶ In practice, however, it is the level of antiviral antigens in the blood that technicians are observing because in order for RNA viruses to be detected under the microscope they must merge with the DNA of a host's cells. In other words, it is not the cellular structure of WNV but the immunological evidence of its presence that is identified by front-line testing.

As my descriptions of the four arenas of surveillance illustrate, on the PHAC website the technique of surveillance produces specific knowledge about WNV that is used instrumentally within a variety of formal responses to the disease.

Human surveillance information is used in a number of important ways. Knowing that West Nile virus is in an *area* puts doctors and the general public on *alert*. It also provides more clues about *who* may be at *risk* for serious health effects from West Nile virus. In addition, human surveillance provides information to help ensure the safety of the *blood supply* in Canada. (PHAC, 2004d; italics added for emphasis)

Each key way that surveillance is utilized points to a relation of power at work within the PHAC's production of WNV. As the italicized words in the passage indicate, the PHAC conducts surveillance to locate the position of WNV activity spatially as well as to gather data that can be used to contextualize WNV socially. For instance, on the PHAC website the word *alert* highlights the notion that WNV is a viral invader that has breached the Canadian border.⁷ On the website the words *area* and *risk* convey the message that WNV is an active health threat within communities and neighborhoods. By distributing the message that WNV is a 'threat in our midst,' the PHAC raises the public's level of awareness about WNV and because this message is presented as an 'alert' it may also lead people who live in the areas under WNV surveillance and/or who feel personally vulnerable to WNV infection, to feel a heightened awareness of the presence of WNV. To reinforce the idea that people should personalize the idea that WNV is a threat the

⁷ In 2004 Canada's first national security policy document entitled *Securing an Open Society: Canada's National Security Policy* was published. In her research on this security policy, Bell observes:

There are two notable characteristics of the policy that illuminate important aspects of modern power relations. The first is the articulation of the freedom, health and safety of the Canadian population as a primary security objective... The second characteristic concerns the emphasis on surveillance. While the policy explicitly devotes only one strategic area to intelligence, further investigation shows that securing each strategic area relies in large part on the development of routine surveillance practices. These characteristics inform a security approach that rationalizes Canada both as a sovereign state oriented to ends-means strategies and as a collective population that requires subjection to regulatory mechanisms to secure it from a range of broadly conceived 'risks' that fit under the equally ambiguous rubric of liberty, health and safety. (2006, p 148-9)

PHAC uses the pronoun *who* to indicate to whom it is directing particular messages about the WNV health threat. Correspondingly, the PHAC places these same people under observation or delegates the task of observation to them; as is the case when the PHAC's prevention literature suggests that individuals, especially those deemed more at risk of becoming ill from a WNV infection, watch their behaviors and health closely. Finally, the PHAC's reference to the *blood supply* underscores the biological dimensions of WNV and in doing so offers another rationale, albeit indirect in this framing, for the PHAC's use of the scientific method to produce knowledge about, and responses to, WNV.

Analyzing the PHAC website through surveillance as a technique of power illustrates that the PHAC relies upon observation in various arenas to make WNV visible. Once visible, the PHAC can use WNV to rationalize the agency's investment in surveillance as a preventive health strategy, and by extension, to justify the proliferation of new surveillance technologies, the allocation of more federal funds towards surveillance programs, the placement of certain places and populations under surveillance, and the use of surveillance data to generate knowledge about WNV. My reading also shows how Foucault's understanding of how larger groups of people can be observed by smaller groups of specialists through technological advancements is exemplified on the website. Through spatial demarcations of the presence of WNV, the PHAC is able to produce WNV as something other than just a biological entity; the PHAC can produce WNV as a health threat that needs close ongoing scrutiny.

In sum, through surveillance the PHAC establishes the scope and demarcates the terrain of its WNV responsibilities and reach, including the spaces it will oversee, the people it will track (in an effort to protect them), as well as the animals and insects that

are factors within its program. Surveillance also determines the degree of attention to detail that the PHAC will pay to people's bodily activities as well as to the management of their homes and families.

Individualization

In the previous section I have indicated that the PHAC uses surveillance in many ways, including for the observation of citizens in order to protect their health and safety. In this section I ask who is it, exactly, that the PHAC is trying to protect? And how does the PHAC link these individuals to WNV on its website? What I have come to understand through this analysis is that the PHAC website produces idealized individuals who act in a rational and sensible manner – and thus can prevent becoming infected with WNV. This observation is in keeping with Foucault's view of individuals as effects of power in that individualization is a technique of power that casts an idealized individual (1995, p. 137). Idealized individuals are abstract in the sense that they are discrete units that can be ordered and organized without paying attention to their characteristics, feelings, lived experiences, or agency.

As is expected from the use of individualization as a technique of power, on the PHAC website, once the text's authors strategically produce idealized, abstract individuals, they discursively manipulate them. One way the PHAC does this is by targeting information about key prevention methods to specific individuals, using the term 'you' to refer to an abstract 'you' and the possessive 'your' to link the generic 'you' to particular spaces, places, and people – such as 'you and your family,' 'your home,' 'your neighbours,' 'your community,' 'your local public health authority,' and 'your level of risk of being infected by WNV.' For example, the architects of the "Fight the

Bite!” campaign have repeated a specific set of instructions, not only through the public education flyers, brochures, television commercials but also through the WNV website. The primary instruction that has been developed by the PHAC is this: in order to prevent WNV infection, individuals must monitor and regulate their bodily activities, behaviours, and practices.

Avoid mosquito bites - *your* first line of defence.

* Use mosquito repellent that contains DEET or other approved ingredients.

* Wear light-coloured, loose-fitting clothing.

* Wear long-sleeved shirts, pants and a hat if *you* are going camping, hunting, or into wooded or swampy areas. (FNIB, 2005a; italics added for emphasis)

In using the pronoun ‘you’ and the possessive ‘your’ the PHAC effectively conveys that the content of the website is relevant to ‘you’ the reader and reinforces this assertion with detailed information. In taking this approach, the PHAC not only isolates and targets individuals but also constructs stakeholders in the “Fight the Bite!” campaign. One effect of this approach is that individuals as stakeholders become vital to the campaign because they are given specific roles and responsibilities, such as learning how to defend the self against WNV.

Another aspect of individualization comprises the attempt by the PHAC to establish itself as *the* authority on WNV, and thus identifying, isolating, and targeting specific members of the population for participation in the PHAC campaign. Therefore, at the same time that the PHAC uses individualization to develop and market its public health campaign, the PHAC avoids addressing overarching questions that could possibly diminish its own authority to address the issue in the first place. As a result, there is no discussion of the relations of power that enable the PHAC to put on the mantle of authority or how relations of power inform the production of the PHAC’s WNV campaign. In a similar way, the PHAC constructs individuals as stakeholders with

authority on the basis that these people know how to prevent WNV infection. However, the authority of the individual is illusory because this person is not a thinker but a doer – in short, a good citizen adept at following rules, even if they are only suggestions.

Furthermore, the PHAC uses individualization to convey the idea that individuals can prevent or resolve incidences of WNV infection. This strategy, too, is flawed because individualizing a collective threat does nothing to address the aspects of WNV infection that are beyond the control of any one individual.

Totalization

Controlling WNV infection is also beyond the power of many of groups, even those at whom the PHAC directs prevention campaign materials. Regardless, numerous sections of text on the PHAC website are directed at a particular region, community, or grouping of people, parents for example, who share a similar social role. Correspondingly, the PHAC also packages information bytes about WNV and directs these specific sets of information at particular clusters of people. There are, for instance, WNV prevention materials developed specifically for pregnant women and alerts sent specifically to people living in WNV ‘hotspots.’ On the website, the PHAC assembles groups by collapsing people or ideas into bounded entities, ascribing them with key characteristics, and ranking them in relation to one another. Because totalization demarcates groups, the PHAC uses this technique to link the production of groups to the enactment of other techniques of power, such as distribution, classification, regulation, and exclusion, within its production of WNV. In other words, by sectioning off the population into smaller units, the PHAC can more efficiently organize, co-ordinate, and direct its WNV prevention program.

The most obvious example of totalization is the PHAC's presentation of itself as a unified pan-Canadian network. By articulating itself as an undifferentiated and monolithic group comprised of various experts, infrastructures, and social privileges, the PHAC uses the technique of totalization to reinforce its position as an expert entitled not only to define what WNV is, but also to determine the most effective and responsible ways to respond to this virus. The PHAC establishes 'the Canadian public' as the group that complements its own formation as a unified collective of experts. As such, it is also the Canadian public who is the PHAC's target audience and the 'consumer' of its WNV website. Within the grouping 'the Canadian Public,' the PHAC has also identified a number of sub-groups and has targeted them with specific messages about WNV.

The organization of sub-groups on the website tends to reflect the organization of groups in society because of the hierarchies the authors have used to classify the sub-groups within its production of WNV. For example, the PHAC presents scientists as the pinnacle of WNV expertise and authority. In contrast, the PHAC produces many other groups who, ideally, are expected to comply with the PHAC's WNV prevention strategies. The PHAC presents homeowners, for instance, as the group responsible for the management of the micro-environment of private property; federal public servants meanwhile become the collectivity whose health is the responsibility of the federal government and whose contractual obligation it is to follow the health advisories distributed to them. Likewise, parents become a group that is motivated to learn about, and comply with, the PHAC campaign, in order to protect their "families." Women are presented as a group that, when pregnant or breastfeeding, have the capacity to transmit

WNV to their progeny. Men, on the other hand, appear as authority figures and experts.⁸ Each of these is a unified, monolithic entity that is not diverse in any way.

In the previous examples, the PHAC produces groupings using social identity markers such as gender, tenure of land and housing, and educational training; however, the PHAC also uses the categories of race, ethnicity, and species within its production of groupings. For example, the PHAC identifies First Nations and Inuit peoples as another social group. In co-ordination with the First Nations and Inuit Health Branch (FNIHB), the PHAC customizes a special set of instructions about WNV prevention for First Nations and Inuit communities (see FNIHB, 2005a, 2005a). Another social grouping the agency employs is a widely held social distinction between humans and non-humans; especially in literature that discusses mosquitoes as the embodiment of the WNV threat and humans as the key victims of WNV infection. Regardless of the substantive dimensions of the groupings, the PHAC identifies and characterizes specific collectivities in order to explicitly state ways of acting vis-à-vis WNV that each group is clearly responsible for as part of the “Fight the Bite!” campaign that is designed to protect Canadians.

The PHAC’s technique of assigning groups with a specific set of characteristics, such as a collective social identity and locating groups within specific geographical locations also enables the PHAC to ascribe groups with an immunological status. An effect of this ascription is that the PHAC creates a linkage between groups and the probability of becoming infected with WNV:

⁸ This presentation only becomes visible by analyzing the gender of each expert that is presented on the website. Usually, the expert is presented as an individual male, typically as a scientist.

Although the chance of being *infected* is low - and the percentage of those infected that develop severe health effects is even lower - *everyone* in an area that has West Nile virus activity is at risk. However, risk for serious health effects generally increases with age. It is very important to reduce the risk to *you and your family* by taking steps to avoid mosquito bites since this new disease is in Canada to stay... The best way to avoid becoming infected with West Nile virus is to not get bitten by a mosquito. (PHAC, 2005d; formatting removed)

In this example, the authors organize the information presented in this public health literature around the groupings, ‘everyone,’ ‘older people,’ ‘family,’ – read as comprising the Canadian Public – and ‘mosquitoes’ – read as the potential carriers of infection with WNV. The PHAC also characterizes the human groups in terms of their anticipated level of risk of infection and the actions they should take to prevent infection, including using the mosquito repellent DEET to keep ‘you’ and ‘your family’ safe, and removing mosquito breeding grounds from private property. In this sense, totalization is a technique that (unlike individualization) collapses all readers of the website into a grouping that has been assigned a specific set of tasks so that together they can ensure that the Canadian Public does not become infected. It is the linking of the specific totalized grouping, such as a property owner, a pregnant woman, or a parent, to another totalized grouping such as the Canadian Public or an ‘immunologically at risk’ group, that people are coerced into acting in specific ways ‘for the good of us all.’

Classification

On the PHAC website, classification is the technique responsible for the organization and orderly presentation of knowledge about WNV. Classification works by schematizing, sorting, and ranking the material that enters into its realm of activity. Classification both produces new categories and employs pre-existing ones. By using previously accepted organizational schemes, the PHAC presents knowledge according to socially accepted classificatory systems. The PHAC’s website reads, therefore, as the product of

recognizable and natural approaches to ranking and interpreting knowledge about WNV. Given that classification divides phenomena into discrete categories, and ranks them in relationship to other categories, authority comes to be associated with each unit in the classification and can simply be invoked as a justification, legitimation, or rationalization of a social practice.

The premier building-block in the PHAC's production of WNV is the scientific method which the PHAC uses to produce its notions of WNV. For example, the authors of the PHAC website reference scientific and governmental experts to justify their inclusion of certain ideas on the basis that they are scientifically verifiable (authoritative knowledge) and the exclusion of others on the basis that they are subjective (popular knowledge). The PHAC also uses scientific categories to classify, order, and present information about WNV on the website with the most obvious scientific classificatory scheme being the distinction between humans and non-humans. The information in the texts populating the website is also organized around this division. The importance of classifying knowledge as authoritative is manifold. Not only can the PHAC use this scheme to subjugate certain kinds of knowledge, it can also use this technique to give authority to certain of its own claims. Therefore, as the organization with social, scientific, and administrative authority, the PHAC has the ability to elevate contested or unproven forms of knowledge, such as statistical hypotheses or predictions, to the status of undisputed knowledge.

Calculations of risk that inform the PHAC's WNV response plans are an example of hypothetical knowledge that has been elevated to the status of authoritative knowledge. Within this risk/prevention classificatory system, the PHAC defines all things

associated with WNV infection, disease, and transmission as a risk and all those practices affiliated with the PHAC's responses, strategies, and future plans as linked to prevention. The key players within the risk/prevention scheme are mosquitoes, as the primary agents of transmission, humans as the most important injured party, and the PHAC as the source of prevention. In that WNV is transmitted through bodily fluids, dead animals (whether game to be dressed and cooked, carcasses to be slaughtered, or specimens to be studied) are also identified as a risk to human health.

An example of the construction of the risk/prevention scheme is found in the health advisory published by the PHAC for federal civil servants. The advisory includes a list of precautions to be taken by people handling clinical specimens (e.g. blood, serum, cerebral spinal fluid (CSF), and tissues) that are potentially infected with WNV:

- [These substances] may be handled in a Containment Level 2 facility using Containment Level 3 operational practices
- sorting of mosquitoes for species identification, where possible and practical, may be performed in a Containment Level 2 facility
- certified biological safety cabinets should be used for laboratory manipulations of suspect clinical specimens
- centrifugation of clinical specimens (e.g. for serum separation) should be carried out using sealed centrifuge cups or rotors that are loaded and unloaded in a biological safety cabinet. (Office of Laboratory Security, 2003b)

Although the cited texts refer to both humans and animals as potential conveyors of WNV infection, the PHAC is ultimately concerned with human health. The role of the PHAC as the expert that stands between WNV and the Canadian public is also implied in this example as it is in each text where the PHAC assumes its presence as the unacknowledged author. Further, on the website, the implicitness of the PHAC's authority to define risk as well as to determine appropriate preventative measures is based on its political and scientific locations as a public health agency. In not discussing its practices, the role of classification within the enterprise of building scientific knowledge,

and its use of classification in positioning itself as an authority, the PHAC averts the need to address how classificatory systems produce truths, including truths about WNV.

Therefore, across the PHAC website, calculations of risk along with the identification of numerous agents involved in the production and proliferation of WNV, justify the PHAC's pro-active responses to WNV.

Normalization

I read the entire PHAC website as a technique of normalization. However, it should be noted that normalization is more than the governing of people's actions through norms (read: socialization). It is a technique through which norms order and shape all aspects of social life. As a technique of power, normalization has served the PHAC's production of WNV because it is a technique that defines and regulates what is appropriate, customary, routine, regular, familiar, acceptable, and expected within society. As the concept of normality changes over time, judges of normality must participate in the production and reproduction of normality by subjecting individual gestures, behaviour, comportment, and aptitudes to scrutiny. The PHAC has produced its website to function in much the same way as that of a judge of normality might because it uses the website to define appropriate WNV prevention activities and to invoke the notion of WNV infection as the ultimate consequence for failing to comply with its WNV prevention plans. Through combining the technique of individualization with normalization, the PHAC produces the message that responsible individuals monitor their own behaviour as well as the actions of others and that to fail to do this will lead to illness if not death from WNV (see Foucault 1973, 1980b, 1995, and 2003).

The website chosen for this analysis normalizes the PHAC's construction of WNV and its response to this new infectious disease by suggesting that what it is doing and saying as Canada's public health agency is necessary as well as scientifically reliable and politically sound. The PHAC produces this effect in part through invoking the authority of the scientific method which it equates with scientific positivism and the ability to produce objective, factual knowledge about social and biological phenomena. The PHAC's authoritative approach is also normalized because it has the political location and economic resources to produce, and widely distribute, texts that instruct Canadians about both what WNV is and what should be done about its presence in Canada. The PHAC also relies on its authority and in particular on its affiliation with scientific expertise, to justify the exclusion of contradictory viewpoints. Therefore, it is experts such as governmental officials and scientists who define what is normal and acceptable and, by extension, what is abnormal and unacceptable about WNV and the responses it demands.

For example, the nine main sections on the PHAC's WNV website are reformatted and issued as "Fact Sheets," (listed below) which are designed to be downloaded and distributed:

- General Overview
- How to Protect Yourself and your Family
- Pregnancy and Breast Feeding
- Surveillance, Education, Prevention and Response
- Symptoms and Treatment
- Transmission Through Blood
- Using Pesticides to Control Mosquitoes
- West Nile Virus and Animals
- West Nile Virus and First Nations. (PHAC, 2004f)

The distribution of "Fact Sheets" is an illustration that the PHAC's WNV response is socially and politically expected and that the material it produces is easily consumed by

the Canadian public as factual and, therefore, reliable. The underlying assumptions normalized within these “Fact Sheets” are these: the use of science is appropriate for a public health campaign about a biological virus; the expectations of the public described in the campaign literature are acceptable; and the activities the public is asked to engage in are rooted in commonsense. In staking the territory of presenting “facts” the PHAC also undermines the authority of other responses to WNV. An awareness of the language and techniques of normalization at least allows the reader to identify the role of positivist science in the production of authoritative knowledge and to question the subjugation and exclusion of specific forms of knowledge within the PHAC’s WNV response. That being said, the PHAC does not propose or encourage critical readings of the website, which is another by-product of the effectiveness of normalization.

In sum, although there are only a few key messages about WNV repeated throughout the website, this information is presented by the PHAC personnel as having been produced seamlessly without either contestation or public or political pressure on the knowledge production process. As a result, the complexity of the production process and the multidimensionality of the WNV phenomenon are not addressed by the PHAC. By complexity, I am referring, for example, to the tensions produced when certain texts on the PHAC website represent WNV as a serious disease that effects only a small number of people versus sections of text that construct WNV as a more serious and widespread health threat than can be substantiated through scientific and medical literature on the disease. In a related sense, I am also referring to the tensions created between material produced by the PHAC personnel that educate and motivate people to protect themselves against WNV in a relaxed and alert manner versus educational

material that over-emphasizes the risks posed by the disease and that begin to generate fear and panic about WNV; thereby undermining the PHAC's ability to discipline the population through knowledge about the disease. In that the website does not include reflections on these tensions within the PHAC's production of its WNV educational material, the PHAC's website functions as a strong normalizing force in asserting the authority of the PHAC as an expert on WNV, defining WNV as a generalized health threat, and establishing the parameters for appropriate responses to this newly emergent infectious disease within Canadian society. In that these parameters, in part due to the authority the PHAC holds within the arena of public health, are reproduced throughout society they consequently inform a variety of less formal institutional and individual responses to WNV. Furthermore, in that many people are concerned about WNV, readers of the website may tend to be indiscriminately accepting of authoritative information about WNV, if not advocates for the rejection of 'alternative' (read: un-scientific and therefore unreliable) views on WNV. In this final example, an effect of constructing fearful individuals is that the normalization process that is already produced through the PHAC's WNV website is further reproduced by the concerned reader.

Exclusion

Another way that effects of normalization filter through the social world is by determining what thoughts and practices are rejected in the name of WNV preparedness. Within the political context of the PHAC's public health apparatus, the exclusion of specific ideas and actions is strategic and often subtle. As a result, it is through reflecting on what is not part of the WNV website that it is possible to identify elements that have been excluded. While the disciplinary technique of exclusion takes many forms including

discrimination, punishment, prohibition, segregation, elimination, and omission (Jones, 2000, p.16), on the PHAC website, exclusion is not carried out in such extreme forms. Rather, the PHAC's website incorporates the central characteristic shared by all forms of exclusion -- the non-noticing that anything has actually been excluded.

On the WNV website specific forms of knowledge are the entities that are most often excluded. The PHAC does not tend to actively exclude ideas by discussing the concepts that are being rebuffed, or by offering a rationalization for the rejections; instead, more covert means are used, such as not mentioning the existence of alternatives. Therefore, although competing scientific and popular perspectives exist as to what WNV is, only one perspective -- that of the PHAC -- is promoted. In order to accomplish such a task, the PHAC has even excluded information produced by organizations that agree with the PHAC's basic conception of the virus yet are opposed to aspects of the PHAC's proposed method of remediation, for example, the use of specific chemicals in WNV treatment programs. This is the case with literature produced by medical and scientific organizations which expresses concerns about the health impacts of larvicides and pesticides, such as the Toxics Action Group (see Sugg and Wilson, 2001) and the World Research Institute (see Repetto and Balija, 1996). As a result, one of the uncontested and central messages promoted on the website is that using chemicals is an effective preventative strategy:

Insecticides, including larvicides and adulticides, are used to reduce the population of mosquitoes that could be capable of transmitting West Nile virus to humans. Larvicides may be used in First Nations communities where there is a medium or high risk of humans contracting West Nile virus. Adulticides are considered only as a last resort to prevent human infections in instances where there is significant risk to human health from West Nile virus and where prevention or mosquito control measures have failed or would clearly be inadequate to stop the spread of the virus. (FNIHB, 2005a)

Although the sample text above points toward the possibility of problems with adulticides, notice how identification of a specific problem about adulticides is excluded. An effect of excluding other perspectives on the use of insecticides is that a dialogue about what WNV is and what should be done about it cannot be cultivated between the PHAC, other experts in the fields of health, the environment, and medicine, and the Canadian public. Excluding dialogue between these groups precludes discussion about the links between Malathion exposure and the onset of immuno-compromised illnesses such as cancer or the mutational impacts of chemicals which result, in particular, in birth defects or neurological damage (see Repito and Baliga, 1996; McKinney, 2002; Shapiro & Micussi, 2003). Also not addressed are the ways in which chemicals render outdoor spaces uninhabitable, whether the place is a neighborhood that is toxic for a few hours after a fogging campaign or natural mosquito breeding habitats that are deemed high WNV infection zones summer after summer and are, as a result, heavily sprayed with organophosphates. Interestingly, one of the cumulative effects of the PHAC's exclusions is the production of a more profound extinguishment, namely the erosion of states of mind in which humans feel safe to move through the natural world without excessive protective technologies (for example, insect repellants, specific kinds of clothing, and even weapons) or at the very least, accepting of a vulnerability that can come from moving through environments (Merchant, 1980; Gaard, 1993, Sturgeon, 1997) in which some entities cannot be seen or controlled (Sandilands, 1999).

Regulation

One way that the PHAC proposes to ameliorate feelings of lack of safety and reduce the element of risk posed by WNV is through the formal regulation of activities related to

public health. Therefore, on the PHAC website, regulatory practices are linked most often to preventative practices – an affiliation which reinforces the notion that the PHAC's proactive response to WNV is not only rooted in health concerns but is also a political, legal, and economic endeavour. The use of regulation as a technique of power indicates formal relations of power because regulations are legally binding and socially sanctioned, although they can be formally imposed as well as voluntarily followed. Discursive and non-discursive apparatuses such as institutions, architectural forms, regulatory decisions, laws, administrative measures, scientific statements, and technical processes all play a role in the enactment of regulation as a technique of power. Regulations are also generative in that they can be used to make particular substantive points or to cause specific material, political, and social effects.

The role of regulation within the production of WNV is directly linked to the regulation of Canada's public health care delivery systems and is not explicitly related to the regulation of the general public. In other words, regulatory practices produce knowledge about WNV by controlling the activities of knowledge producers within the context of the PHAC. For example, the PHAC has established that the use of chemicals is the appropriate method of controlling the proliferation of mosquito populations. Due to the volatility of the chemicals, the PHAC argues, it is required to regulate the way people handle these substances. Likewise, the PHAC actively regulates activities within the Canadian Blood Services and Héma-Québec under the auspice that, as Canada's public health agency, it must ensure the screening of the blood supply for the presence of WNV. Clearly, within the public health infrastructure, specific forms of regulation are an intrinsic part of the operations of the PHAC; however, the PHAC also uses WNV to

imbue these “business as usual” regulatory practices with a renewed sense of urgency. Therefore, whether regulating insecticide use or the blood supply, it is the presence of WNV (or its potential presence) that the PHAC uses to justify the development and exercising of many regulations that pertain to the agency’s WNV response.

To this end, the PHAC not only states that the safety of Canadians necessitates the regulation of specific substances and institutional activities but also presents itself as the appropriate organization to oversee these regulatory practices. On the page entitled, *What The Public Health Agency of Canada is Doing*, the PHAC suggests that it is taking responsibility for the health and well-being of Canadians during an upcoming WNV season through performing a variety of supervisory and regulatory functions:

To prepare for the upcoming 2004 West Nile virus season, Health Canada, now the Public Health Agency of Canada, in collaboration with its many partners, is focussing its efforts on the following activities:

- Canada-wide surveillance for West Nile virus
- Keeping Canada's blood system safe from West Nile virus
- Testing for West Nile virus
- Safe and effective pesticides and insect repellents
- Keeping Canadians informed about new findings on West Nile virus
- Working in collaboration with First Nations communities on reserves the Public Health Agency of Canada is coordinating a national approach to West Nile virus. (2004c)

As this text implies, formal regulation is embedded within the structures, policies, mandates, and jurisdictions of the agencies involved in the PHAC’s WNV response. In this sense, the PHAC’s regulatory practices shape the possibilities of how WNV can be understood and responded to within Canada.

The Canadian public, however, is not formally regulated by the PHAC website nor are there examples given of any formal punishment of Canadians engaged in “risky” behaviour vis-à-vis WNV; rather, people are encouraged to *voluntarily* take on the practices suggested by the PHAC on the basis that the knowledge provided will be reason

enough to participate in WNV prevention practices. The PHAC's linking of regulatory activities with specific forms of knowledge which the PHAC uses to justify the regulatory practices fits with Foucault's (1980a) argument that within power relations, power/knowledge plays an important role in the production of meaning and the organization of the social world.

Distribution

In contrast to regulation, which is the tight controlling of people and activities, the technique of distribution is visible in the way the PHAC has spread its physical presence across Canada. Distribution activities also reflect the agency's effort to enhance its efficacy and authority as the nation's expert on infectious disease responses. As a technique of power, distribution spatially positions bodies, buildings, and places in relation to one another and in the case of WNV, the PHAC uses this technique to produce social infrastructures, communication networks, and systems that are designed to materially and discursively distribute information about WNV across Canada. Not surprisingly, on the PHAC website, distribution works in conjunction with other techniques of power, especially surveillance, regulation, and exclusion.

The structures that are produced and distributed throughout the PHAC's public health apparatus also play a role in determining how the PHAC constructs WNV and its response to this "newly emerging disease." In that the PHAC is primarily a governmental, scientific, and educational organization, it can only view WNV through the frameworks of governance, scientific exploration, and education to which it subscribes. A key characteristic of the development of the PHAC as a pan-Canadian public health agency is that administrative, scientific, and educational activities have

been distributed strategically across Canada. An effect of this distribution is, in particular, the development of a sophisticated national laboratory network designed to enable the scientific community to collaborate with the federal government in infectious disease research, development, and prevention.

In addition to developing its institutional infrastructure through establishing its presence across Canada, the PHAC has also invested resources into public education information distribution apparatuses. In the case of WNV, the PHAC cultivated an integrated physical distribution mechanism, which included retail outlets, non-governmental organizations, and federal departments with the intention of ensuring that all Canadians were in receipt of its WNV message:

Partnerships have been established with over 13 national retail chains, which will have posters/displays and information flyers in over 3,700 retail outlets across Canada. The flyers provide basic information about West Nile Virus and direct Canadians to Health Canada's West Nile Virus toll-free line and web site for the latest information... Health Canada has also developed awareness material targeted specifically to First Nations. An information poster has been mailed to households on reserve, and to friendship centres... As well, an information pamphlet has been developed and sent to nursing stations and community health centres on reserve. (Health Canada, 2003b)

As the text above indicates, the distribution of the PHAC's "Fight the Bite!" campaign materials has been facilitated by a wide range of groups that includes citizens, business owners, First Nations' and Inuit peoples' band councils, media houses, and the Canada Post. The broad distribution of the PHAC's notions about WNV throughout Canada also draws attention to the PHAC's reliance on the public to promote the notions that WNV is a risk and that the PHAC is the expert in WNV prevention in this country.

Part Two: Insights and Reflections

In this section I first discuss three insights into how Foucault's eight techniques of power work together on the PHAC's website to produce WNV: 1) WNV is more than simply a

viral entity, it is a biological, social, and administrative construct; 2) WNV is a product of the PHAC as it exists in our current historical moment; and 3) WNV is a justification for the PHAC's new pro-active public healthcare delivery system. I then draw this chapter to a close by reflecting on how these three insights are illustrative of Foucault's notions of power, and comment in particular on how discipline, discourse, and power/knowledge can be further explored as contributing to the production of social phenomena.

Insight One: WNV as a Bio-social-administrative Phenomenon

On the PHAC website, the production of WNV is premised upon the idea that WNV is a biological phenomenon. However, on the website, it is not the biological dimensions of WNV but rather their social significance that is the focus of most of the texts assembled. By weaving discourses about the biology of WNV and WNV infection into its public health response, the PHAC produces texts that highlight the social implications of WNV infection. In that the construction of WNV also occurs within the context of the PHAC as a public health agency, WNV is conceptualized as an administrative event. By administrative event I am referring to two aspects of the PHAC's response to WNV. One, WNV becomes an entity that needs to be institutionally, politically, and publicly administered (overseen, organized, officially responded to, contained, as well as physically and discursively managed) because the PHAC is the agency responsible for producing a WNV response in Canada. In other words, the mandates of the PHAC produce the possibility for WNV to become an administrative event. Two, because WNV is administratively significant to the PHAC, the PHAC's responses to WNV involves practices of shaping, sculpting, and mobilizing specific discourses, agendas, strategies,

and mandates that emerge both out of the PHAC and out of Canadian society at this particular historical moment.

On the PHAC website, WNV is produced as a biological, social, and administrative phenomenon. At times, these three conceptualizations of WNV are kept separate, as is the case when various individuals and branches of the PHAC work separately, but simultaneously, to define WNV as a discrete biological, social, and administrative event. In these moments, individuals and branches endeavour to keep their own discourses, and the relations of power that produced them, separate. For example, many scientists exclusively define WNV as a virus and draw on concepts such as epidemic, outbreak, prevalence, cure, vaccine, and transmission to describe the relevance of WNV to science. Examples of this framing are found on the website in the diagnostic literature for doctors and the laboratory protocols for diagnosis. In contrast, PHAC personnel developing “Fight the Bite!” campaign material define WNV in terms of its social relevance. Finally, governmental administrators produce WNV as a policy, fiscal, human resources, national security, research, public health programming, or election campaign issue.

At other times, the PHAC produces WNV as a public health concern that, when examined, is actually the product of biological, social, and administrative discourses that have been folded into one representation referred to as WNV. The technique of folding disparate discourses into one form is most obvious within the PHAC’s administrative response to WNV. WNV becomes an administrative construct when the PHAC considers how the virus infects people, how it is transmitted, evaluates the kinds of illness it produces in people, and estimates, according to region, the number of severe cases of

WNV infection that will emerge. Once WNV takes on the form of an entity to be managed, the PHAC must respond by assessing its responsibilities and resources vis-à-vis particular populations and regions.

Clearly, the PHAC's organizational apparatus requires that WNV become something other than simply a viral entity because it is an agency designed to react politically, socially, and economically to "newly emergent infectious diseases." For example, within branches of the PHAC that deal with national health security issues, WNV is produced both as a virus and as a viral threat to national security and over time comes to be referred to using the short-hand 'a viral threat' or 'a viral invader'. WNV as the 'viral invader' is then linked to various administrative infectious disease response protocols. Another way of stating this is to say that administratively, WNV is a product of power/knowledge relations that are at work within the PHAC's public health infrastructure.

The practice of defining WNV simultaneously as a bio-social-administrative entity is evidenced in other responses, such as within the production of material for the "Fight the Bite" campaign where WNV is presented as a virus transmissible by mothers to their fetuses and breastfeeding infants or as a virus that preys upon families more generally. Within these framings, WNV forms an indiscriminate biological risk to the Canadian public writ large and poses, therefore, a significant challenge to the public health infrastructure. As this example shows, the assembly of WNV as a bio-social-administrative construct reveals the mutuality between relations of power within the PHAC and the circulation of discourses about WNV through these relations of power.

Insight Two: WNV as a Product of the PHAC in this Current Historical Moment

The heterogeneity of WNV and the variety of arenas within which it has currency make it difficult to pull together a comprehensive definition of WNV, and this amorphousness brings me to my next major point. Given the significance of WNV as an administrative, a biological, and a social entity, the PHAC has produced a multitude of WNV constructs. Each assemblage has its own discursive composition, relevance to society, definition of risk, and ties to the disciplinary apparatuses involved in its production. Each apparatus, in turn, is embedded within relations of power that produce WNV. One meaningful way to read WNV, therefore, is as a product of its historical, political, and social context. To illustrate, the information presented on the PHAC's website is constructed from knowledge produced through negotiations between governmental employees, public health administrators, as well as scientists and medical practitioners. The content of the negotiations, the contexts within which these various groups respond to WNV, and the conditions surrounding these collaborations all shape the production of WNV and, therefore, the information about this new disease that is presented on the PHAC's website. Stated differently, within collaborations between experts, the contingencies that all parties can respond to limit the scope and definition of what WNV "is" within the PHAC's WNV responses. In addition, whether the response is to an actual or to a potential WNV outbreak becomes less consequential consideration within moments characterized by high anxiety about the risks WNV poses to human health.

WNV, in the forms that it eventually takes, obviously did not exist before the production of the PHAC's website. I am not suggesting, however, that the PHAC's response is not connected to, or even reflective of, the biological realities of the disease nor am I dismissing all warnings about WNV posed on the website. Rather, I am suggesting that the

PHAC website says more about the organizations, disciplines, mandates, timeframes, legal expectations, power struggles, role of positivist science, kinds of surveillance technologies, budgets, the governmental organization of ministries, conceptualizations of health and illness, governmental and social responses to the unknown, the role of notions of risk, and practices of prevention in public health structures than it does about the RNA virus called West Nile. I am also offering the insight that WNV is an effect of power/knowledge relations and can serve, therefore, as a conceptual tool for the reader of other PHAC websites who wants to place the role of PHAC, and the information presented on its website, within a larger social and administrative context. Through the act of critical contextualization, the production of WNV can be explored in relation to the socio-administrative milieus within which the disease has been constructed. As Foucault observes, the social world is discursively constructed through power/knowledge relations and through these associations power, and the effects of power, are distributed throughout society (1995, p. 215).

Insight Three: WNV as a Justification for the PHAC's New Pro-active Public Health Care Delivery System

The WNV that the PHAC produces has little to do with its biologic composition or actual pathogenesis (WNV as entity) and a lot to do with the images and responses to WNV that are produced by governmental, social, public, scientific, medical, and media relations. To this end, the PHAC brings into relationship various institutions and people and sets them the task of producing various aspects of the WNV response. Once set in motion, these 'working groups' produce relations of power, and it is through these relations that WNV is produced. By questioning how these groups do their work I have been able to focus on the role techniques of power play in the production of WNV. What I have found is that

techniques of power can assemble myriad WNV constructions, some of which are used for educational purposes. However, there are other constructed ideas about WNV that are useful when trying to influence people's behaviours vis-à-vis WNV. The most evident form of WNV as a valuable disciplinary tool for the PHAC appears in instances where the PHAC defines WNV as a threat that the agency must respond to, regardless of the measures it must take, on account of the agency's mandate to protect the health of Canadians. What is more, on the website the PHAC does not present WNV as posing a clear and imminent danger to large numbers of people. Rather, the website's authors represent WNV as a virus that introduces the possibility that some people will become seriously ill. In this sense, the PHAC website presents WNV as a risk. Within the nefariousness of WNV risks, there is room to propagate disciplinary activities.

The PHAC's administrative mandate is to respond pro-actively to infectious diseases risks such as WNV. On the website the development of a pro-active public health response is presented as an enhancement of the Canadian public health system. The construction of WNV plays a role in the production of the new PHAC organizational framework by defining WNV as risk and developing a complementary framing of the PHAC as the agency that has the mandate, expertise, and infrastructure to pre-empt infectious disease risks. Given the frequency of the conceptual linkage made between risks and strategies of prevention, throughout this analysis I have referenced the 'risk/prevention scheme' to describe this public health strategy. The risk/prevention scheme is used strategically by the PHAC in its WNV campaign because pro-active responses work by imagining, anticipating, hypothesizing, and speculating about health risks as possible dangers. Techniques of power are mechanisms that produce knowledge,

practices, and effects. Therefore depending on the tasks to which the techniques are applied and material supplied, techniques of power produce both hypothetical as well as empirically-tangible outcomes. In this case techniques of power produce theoretical ideas about risk and, hence, are not always used to produce or respond to pre-existing social facts. In this sense, through techniques of power the PHAC not only constructs what WNV appears to be in the present moment but also anticipates what WNV will do in the future. One effect of this production is that the PHAC is beginning now to build the mechanisms and infrastructures of its future responses both to WNV as well as to other newly emerging infectious diseases.

An example of the PHAC's response to a hypothetical WNV future is the production of pro-active surveillance technologies which not only place under observation areas where WNV has already been detected but also use data, predictive models, and virtual images to develop a spatial image of the 'possible factors' that are 'liable' to produce a risk of WNV infection (see Castels 1991:288).⁹ Looking for WNV in areas where it does not yet exist and producing reports about where it will next emerge (based on a *scientific* hypothesis) are activities that are conducted in the name of prevention. These activities construct a theoretical image of WNV and for that reason

⁹ Another example of a pro-active technology is a mathematical analytical method developed by Dr. Marjorie Wonham and her research team from the Centre for Mathematical Biology at the University of Alberta. This model is designed to allow people to calculate the threshold mosquito population for West Nile outbreak and based on the numbers keep mosquito populations below their transmission thresholds in order to minimize WNV disease outbreaks as well as to reduce the economic cost and environmental damage created by chemical spraying. The framework for deciding what these mosquito control levels should be according to vector transmission ratios, are based on dead bird counts collected in New York in 2000 as well as from published scientific papers on mosquito biology, crow biology, and West Nile biology. The group's intention is that health officials and scientists will tailor this model to match the environmental realities of their region by comparing, for example, mosquito life span, biting rate and crow life span with the data in their area and in doing so create data they can use to customize the parameters for regional insect control programs (Science Daily, 2004).

make it difficult to ascertain the actual levels of danger WNV poses to the Canadian public. In this sense, the PHAC is engaged in producing disciplinary techniques. An effect of the production of these new techniques and (disciplinary) practices is that through them, the PHAC introduces an arbitrary element to the processes and protocols used to determine when something is an empirical danger and when it is a statistically sound, yet hypothetical, risk. Allowing the PHAC to deliver public health services based on highly subjective rationales creates the opportunity for the PHAC to abuse its position as expert about WNV and authority in WNV prevention strategies. It also leaves fewer avenues of recourse, or even inquiry, to those people, for example citizens or non-experts, who question the PHAC's WNV response strategies.

Reflections on the Social Relevance of the Production of WNV

As I reach the end of this chapter, I am drawn to reflect on my underlying analytical approach to reading the PHAC website. The notion that power is simultaneously a strategy, a process, and a physics informs my analysis as does my understanding that power is a productive force (see Foucault, 1995, p. 215). Throughout my study, I have seen that power comes into play when various knowledge producers, administrators, and social subjects work together to produce the PHAC's WNV response. The website I have analyzed is a key product of these power/knowledge relations. As I have repeatedly shown, on the WNV website many aspects of the PHAC's approach to producing WNV are visible. The role of the PHAC as administrator of Canada's WNV response and as the creator of the WNV website is substantiated within Canada due to the PHAC's authority as the governmental agency responsible for WNV and its affiliation with scientific research on the subject. As a result, the links between government and science form the

basic power/knowledge nexus through which the WNV response has been produced in Canada. The PHAC has relied heavily on scientific knowledge about WNV and the authority it gives the PHAC as an administrator of an infectious disease epidemic to determine the parameters of the kinds of knowledge used within the PHAC's response and distributed to Canadians via its website.

Through its response the PHAC has not only determined what is visible and sayable, but it has also decided what WNV is on the website. Most obvious is the PHAC's production of WNV as a bio-social-administrative construct. Consequently, to the PHAC, WNV is not simply a biological entity or an entity around which to educate people about an illness, but is a social construct that rationalizes, justifies, and perpetuates certain relations of power and forms of knowledge. Among the uses to which the PHAC has put the WNV construct are the PHAC's legitimization of the authority of positivist scientific ways of knowing and forms of knowledge, the expansion of the breadth of technological determinism within public health programming in Canada, the promotion and proliferation of the surveillance, regulation, and administration of people and places in the name of health and safety, as well as the production of new kinds of risks and the propagation of fears about them within Canadian society.

To shift current ideas about WNV would require a shift in the composition of the administrative structures, resources, and mandates of the PHAC and the fields of knowledge harnessed within the PHAC's working groups. In other words, a critique of the PHAC's production of WNV is an assessment of the PHAC's physical, operational, administrative, and philosophical infrastructures. Through analyzing WNV as an effect of power, I can see that what a society produces is a reflection of the power relations at

work, the kinds of knowledges that are coveted, and the range of disciplinary technologies in use. In order to change how the PHAC, and as a result how the Canadian public responds to WNV, it is important that Canadians, both on the scale of the institution as well as on the scale of the individual, reflect on how they relate to and with one another across a broad spectrum of relations of power - including the contexts within, and mechanisms through which lay people and experts collaborate.

The reflections on my analysis of how Foucault's notions of power, discourse, discipline, and power/knowledge work together to produce WNV as an effect of power, and, indeed, the analysis itself, is but one way to think about the PHAC's production of WNV. The fact that a variety of other readings could be conducted points to the richness of using techniques of power to understand the role of myriad relations of power in the construction of social phenomena. I hope that this particular reading of the production of WNV can be applied to the analysis of other health issues that are governed and regulated by the PHAC. In the following, and final, chapter I discuss some of the specific ways that using a Foucauldian notion of power to study the production of WNV can contribute to broader analytical, theoretical, and methodological considerations of the study of "emerging infectious diseases."

Chapter Five

Conclusion

On 23 June 2006 personnel at PHAC altered the visual presentation of the WNV website by giving it the same colour scheme as the rest of the PHAC website and condensing the formerly extensive WNV website menu into a small menu box with small print and placing it on the right hand side of the screen. Prior to this date WNV had an extensive website dedicated to the topic. As a result, while the PHAC's other infectious disease websites were presented in the PHAC's blue and white monochrome and contained less information about the diseases, the WNV website was artfully presented with a band of gradating yellow to green colours on the left hand margin of the screen and a large mosquito icon at the top of each colour band. In addition, the website contained numerous texts published on a variety of issues pertaining to WNV. Currently, however, on the PHAC homepage the only remaining indication of the former attention paid to WNV is that the disease is still listed, along with seven other infectious diseases, as a public health issue that is a heightened concern for this agency.¹⁰

The changes to the website impact the PHAC's overall message about WNV because today this disease appears to be just one of many infectious diseases that falls under the PHAC's jurisdiction. Aside from shifts in the visual presentation of the WNV website, however, the texts themselves have been only lightly edited. New scientific information appears in some documents while a few of the more speculative and sensationalized statements about the WNV risk have been removed. The edits to the

¹⁰ The seven other diseases are *C. difficile*, Hepatitis, HIV/AIDS, Influenza, SARS, Sexually Transmitted Infections (STI), and Tuberculosis. See the PHAC at <http://www.phac-aspc.gc.ca/std-mts/index.html>.

website in the summer of 2006 means that my thesis is no longer a study of the PHAC's most recent construction of WNV. Nevertheless, my research remains important as a study of the production of a new infectious disease that commanded a great deal of public attention and was generally thought to require a pan-Canadian governmental, scientific, medical, and public response that was systematic and resource-rich.

The shift in the presentation of the WNV website adds another dimension to my study. In particular, it draws attention to the fact that governmental and public perceptions of infectious disease outbreaks shift over time and to how shifts in practices of governmental regulation and control are linked to the production of risk. The practice of diminishing the importance of one health threat while concurrently promoting the severity of another also draws attention to the significance of time to the process of producing health risks and to the speed at which an infectious disease transitions from being new and emergent to endemic and naturalized. The simultaneity of the PHAC's decision to highlight the importance of Avian Influenza to human health while at the same time shifting its attention away from WNV indicates that governmental activity plays a role in the production of the 'emergence' of infectious diseases. Therefore, paying attention to the shift in status of WNV on the PHAC website raises questions about the relationship between the novelty of a health risk, the rapidity of its emergence, and the correlative intensity of governmental and citizen responses to the disease. The shifts within the PHAC's response to WNV over time reinforce my observation that WNV is an effect of the institutional infrastructure of the PHAC and that it has variously and simultaneously been produced as a bio-socio-administrative construct within the current era.

In this thesis I have studied how the PHAC has used techniques of power to produce WNV as well as shown how it is possible to conduct a post-structural analysis of the production of a disease phenomenon. By way of conclusion, I reflect on my approach to studying the production of WNV in the context of research that employs similar theories, methods, and subjects. Later, in the last section of this chapter, I bring my project to a close by commenting on possible ways that using power to study the construction of a disease threat can be expanded by researchers interested in the sociology of fear, risk, and discipline. I also remark on how thinking about the production of WNV through relations of power can be applied to research on novel disease outbreaks, the study of newly emerging infectious diseases within the sociology of health and illness, and policy studies on public health, particularly around the development of pro-active Canadian public health mandates.

Theoretical Contributions: Relations of Power and the Social Production of Diseases

Increasingly sociologists are employing Foucault's notions of power to study the role of relations of power in the production of the social world, including the construction of social responses to disease, risk, and governmental efforts to promote the health of the population. As a result, Brian Turner argues that Foucault's analysis of power/knowledge has expanded the range of empirical sites studied within the social sciences and has been a significant influence on scholars thinking about disease and health (1997, p. viii). In particular, three aspects of Foucault's observations on power and the production of diseases in the modern world have been elaborated upon by contemporary sociologists. First, Foucault notes that diseases tend to be viewed as infiltrators because diseases have "as a birthright, forms and seasons that are alien to the space of society" (2003, p. 17).

Following from that premise, Foucault shows that diseases are often imbued with a “undomesticated” character – a notion sociologists of risk and governmentality in particular have expanded upon (Beck, 1992, 1995; Petersen, 1997). Second, Foucault’s observation that the more complex the social space in which a disease is situated, the “more *denatured*¹¹ it becomes” (Foucault, 2003, pp. 17-18) has been important to the development of the sociology of medicine in a broad sense (Armstrong, 1997; Conrad, 2005), and more specifically, to studies of the medicalization of disease (Laing, 1964; Conrad, 1992) and explorations of the ways in which disease experiences shape people’s perceptions of the social world (Martin, 1994; Shilling, 1993, 2005). Third, Foucault’s work on bodies has been taken up by feminists and in particular by theorists of the body studying the role of social expectations, identities, roles, and relations of power play in the perception of women and health (Moss and Dyck, 2002; Bendelow et al., 2002; Williams, 2002; Birke, 2002; Busfield, 2002).

A common thread that runs through the above literatures on risk, medicalization, the construction of lived experience, and my study of the production of WNV, is an interest in Foucault’s perspectives on power. In particular, Foucault has offered to these studies the observation that regulation and administration are key features of contemporary approaches to infectious disease epidemics (see Turner, 1997, p. xvii). In other words, “Foucault provided a profound insight into the bureaucratic mentality of a society dominated by the logic of instrumental rationality” (Turner, 1997, p. xvii). What I hope to contribute to the literatures that have considered Foucault’s notions of power,

¹¹ Although Foucault uses the term ‘*denatured*’ I wonder if a more accurate translation of the word might be ‘*denaturalized*’ in order to suggest the notion of pulling away from what one considers to be ‘*natural*’ and to draw attention to the processes that produce certain things as belonging, and others as not belonging, within the nexus between society and the natural world.

governmentality, and health is the idea that social phenomena can not only be studied for their generativity or their place within these apparatuses of power but can also be studied as products of these same power/knowledge relations. In elaborating upon how the social sciences could engage Foucault's notions of power, I hope to amplify the ways in which the productivity of power is approached. When I suggest, therefore, that micro-techniques have produced the WNV construct on the PHAC website, I am in effect arguing that WNV is a product of a particular moment in time. I am also challenging the notion that individual agents stand at the centre of the construction process within the (post)modern world. Further, I am approaching power as a constructive force within the social - production of diseases. I recognize the way that power draws attention to governmentality but I do not support the notion that society is infused with risk in the way Beck (1992)¹² sees it or with the kind of fear that Glassner (1999)¹³ seems to imply. Rather, my observation vis-à-vis disease is that the specific configuration of the relations

¹² Ulrich Beck (1992) suggests that *Risk Society* is a society that is preoccupied with the future. A key aspect of producing and anticipating the future is found within modernizing projects in which humans are simultaneously manufacturing risks, insecurity, and hazards and trying to mitigate against these same risks in the name of technological, social, cultural, political, and economic advancement. The function of production is slightly different in my work than in the work of Beck. For example, I am interested not simply in the role of human activity in producing risks but more specifically in how relations of power (as descriptions of human activity) work on the scale of the social and the individual to produce risks as well as function as disciplinary practices. In short, I am interested in the aspect of power relations in the production of risks whereas Beck seems to be more focused on the role of risks in the production of the social world.

¹³ Barry Glassner (1999) suggests that (post)modern society is a *Culture of Fear*; a culture in which there is a heightened perception of the prevalence of fear and anxiety in public discourse and relationships. Fear is produced through fear mongering and distorted media representations of, and information about, social happenings. Glassner argues that one effect of over-representing danger within the media is that it is easier to assert social control, for example the implementation of certain governmental actions or policies, over a population that is afraid for its safety than over a population assured of its social wellbeing. Although I am interested in Glassner's work on the role of fear in the production of the social world, I am also curious about the mechanisms through which fear is produced both on the scale of the individual and on the scale of the social. For example, in this thesis I have considered how individuals and agencies have contributed to the production of fear about WNV and the ways in which the participation of citizens and the PHAC in the production process has been both generative and disciplinary social activities. I have also focused on the specificity of the production of WNV in order to understand how fear is a product of specific relations of power and not simply a generalized entity that has contributed to the production of (post)modern Canadian society as a culture of fear.

of power on the PHAC's website produced risk and panic. Therefore, I am locating my work in the nexus where the structures and institutions of (post)modern society are developed within "the new environment of risk cultures, political contingencies, and deregulated welfare systems" and through apparatuses of discipline (Turner, 1997, p. xix).

The placement of Foucault's notions of power at the centre of social construction studies of diseases promises to be of value to a number of sociological approaches. In particular, I am thinking of those projects that are developing analytical and conceptual tools for "dissecting" diseases sociologically, and that are studying the social significance of disease (see Gergen, 1985; Lupton, 1994; Martin, 1994; Goudsmit, 2004). For example, those feminist engagements that address issues of power in order to draw attention to how power articulates with ideas about and responses to disease within the power/knowledge nexus of the medical institution or the doctor/patient encounter. One particularly interesting intersection between power/knowledge and the representation of disease is expressed in processes where the scientific *authenticity* and of particular diseases is contested (Johnson 1996; Lorber and Moore 2002), as is the case with Myalgic Encephalomyelitis (Moss and Dyck, 2002), environmental illnesses (Kroll-Smith et al. 2000), and fibromyalgia (Barker 2002). Finally, the theory I used in this project can add to efforts to theorize embodiment where people are questioning both the significance of disease to bodies and investigating how experiences of disease processes inform everyday life (Duden, 1991; Eckermann, 1997; Moss and Dyck, 2002).

Methodological Contribution: Elaborating on Gore's Method

The methodological approach that I have used to centralize Foucault's notions of power within this study has also enabled me to produce findings that can make a small contribution to various academic conversations on health, disease, and risk. Interestingly, post-structural pedagogical studies of interaction between people, and within texts drawing on Foucault, have been a relatively long-standing methodological approach in education to address issues of power. In contrast, in sociology, Foucault's work on power is expressed more generally in methodological protocols developed within post-structuralism (see Kendall & Wickham, 1999). Foucault's work on discourse (1972, 1973, 1980a; see also Akerstrom, 2003), Fairclough's Critical Discourse Analysis (1989, 2001), the elaboration of genealogy into a Foucauldian Discourse Analysis framework (Kusch, 19991; Anderson & Grinberg; Carabine, 2001), the methodological use of power (Gastaldo, 1997; Wright, 2000; Keenan, 2005) and reflexivity (Hertz, 1997; Hill Collins, 2000) are all examples. Post-structuralist approaches that have been used in studies on health, illness, and disease are fewer, however, and have focused specifically on the creation of knowledgability about illness and health (see Fox, 1994). Despite the proliferation of methods, none offered me an explicit technique for using Foucault's notions of power. I turned, therefore, to Jennifer Gore's (1995) work in postmodern pedagogical studies where she has operationalized Foucault's notion of power.

Gore's method offered me an analytical technique that was based on Foucault's notions of power but that also offered a classification of his theory into eight discrete techniques of power that I could manage and therefore use to study WNV (see also Gore, 1994, 1997, 2002). Gore's model is especially useful in two ways. First, she has, in her words, 'tamed' Foucault by turning his fluid theory of power into discrete categories

(1997, pp. 5-6) and in doing so has produced analytical tools that can be employed to identify where and how power is working in particular empirical sites. Second, Gore has offered tools that can be used to describe, in general terms, which techniques of power are at work and what effects they are producing. Once I began to experiment with Gore's categories, however, I realized that I needed to refine them. The key methodological contribution of this thesis research, therefore, is my operationalization of Gore's work in which I added sub-categories to each of the eight techniques of power. The sub-categories I developed are more detailed descriptions of how the techniques work because each sub-category pays particular attention to the ways in which context and empirical data sources shape how techniques of power are employed within various institutional relations. For example, I divided surveillance into the sub-categories of *classical surveillance*, *surveillance through knowledge*, and *relations of surveillance*, and in doing so was able to not only confirm that surveillance was at work in the PHAC's response to WNV, but also to offer a detailed description of (i) how surveillance policed spaces and limited people's activities, (ii) how surveillance worked within specific relations of power to produce knowledge and to modify people's behaviours, and (iii) how individuals and groups were produced as stakeholders within surveillance activities by requiring them to actively and voluntarily place both themselves and one another under surveillance.

Empirical Contribution: A Model for Studying the Social Production of Disease

The first years of the twenty-first century have been characterized, in part, by a quick succession of newly emerging infectious disease threats, such as SARS, Avian Influenza, Creutzfeldt-Jakob Disease, flesh-eating disease, and antibiotic resistant tuberculosis.

During this time, the Canadian government's response to WNV intensified and ultimately culminated in the launch of the PHAC and the federal government's commitment to fund a pan-Canadian public health system (PHAC 2004a). In this study, I have come to understand that the emergence of WNV is linked to the development and promotion of Canada's new public health infrastructures as well as to the practice of linking disease outbreaks to national security responses (Privy Council Office, Canada, 2004). All of the above has happened, of course, throughout the post 9-11 era when the United States and much of the world has been involved in a so-called war on terror. In my view, it is not surprising that discourses of fear, risk, threat, terror, invasion, and discipline have been linked into the construction of WNV and therefore that on the PHAC website, WNV is produced as a bio-social-*and*- administrative construct.

The rise of WNV as an issue of concern for the Canadian population is also in part due to the role of the Worldwide Web. On the internet there is a proliferation of information sources that broadcast discourses about disease and, as is the case with WNV, fear. A commonality that many of these sites share is that they address the nexus between the PHAC's fear of attack to the body politic and the metaphorical connections between fear and the human body often expressed in the public. A civic conversation that is emerging from this phenomenon explores the processes through which fear and disease are so readily conflated at this moment in history. In conjunction, a rethinking of health and sustainable methods of risk prevention is also beginning. In short, many people are reflecting on what diseases are and exploring how best to deal with them.

Wrapping it Up

This research project has opened up three venues of future research for those interested in studying the production of diseases through relations of power. First, in the arena of theory, this work on using relations of power as a method for studying the production of social phenomena can be extended through linking this approach with theories of fear, risk, health, disease, and lived experience (embodiment) as well as through theories on practices of governmental regulation and control. This new work could take the form of a study on how bio-social constructs, such as WNV, not only are effects of structures, mandates, policies, and resource allocation within social institutions but also how these constructs influence the quality and contours of people's lives. Working within the power/knowledge nexus, paying particular attention to the tensions that arise between discursivity and materiality, sociology and biology, and nature and culture may also generate new perspectives about local, regional, national, and international health practices and their roles in producing and responding to infectious disease epidemics around the world.

Second, in the context of research, the technique used in this study could be further refined and adapted to other empirical settings. For example, Gore (1995) claims that her method can be used to study educational settings. My own study of WNV demonstrates that the method can also be used to conduct a social construction analysis of a bio-social construct. New areas of investigation could include how to use techniques of power to study the link between bodies and disease construction processes.

Third, as it pertains to the empirical reality of disease in the social world, this project may open up more interest in studying other diseases that the PHAC is responsible for in order to determine if the PHAC's production of WNV is reflective of

its production of other disease epidemics. This study can also open up spaces within research on discourses of fear (Glassner, 1999; Rentschler, 2003), risk (Castel, 1991; Ewald, 1991; Harding, 1997; Petersen, 1997; Turner, 1997; Baker and Stokes, 2004; Bell, 2006), and practices of governmental regulation and control (Gordon, 1991; Dean, 1994; Deleuze, 1997; Brown, Kroll-Smith and Gunter, 2000; Jones, 2000; Evans and Davies, 2002; Lemke, 2002, 2003, 2004; Aas, 2006), in particular by linking these literatures to studies on pro-active public health responses to newly emerging infectious diseases. This rethinking could enable the PHAC both to respond to WNV through the risk/prevention scheme and to organize its response around an ethic of education and empowerment that would view a novel disease as an opportunity to build awareness and understanding about newly emerging public health risks within contemporary Canadian society.

Bibliography

- Aas, Katja Franko. (2006). From narrative to database: Technological change and penal culture. *Punishment and Society*, 6(4), 379–393.
- Akerstrom Andersen, Niels. (2003). *Discursive analytical strategies: Understanding Foucault, Kosselleck, Laclau, Luhmann*. Bristol, UK: The Policy Press.
- Anderson, Gary & Grinberg, Jaimie. (1998). Educational administration as a disciplinary practice: Appropriating Foucault's view of power, discourse, and method. *Educational Administration Quarterly*, 34(3), 329-353.
- Armstrong, David. (1997). Foucault and the sociology of health and illness: A prismatic reading. In Alan Petersen & Robin Bunton (Eds.), *Foucault, health and medicine* (pp. 15-30). London, UK: Routledge.
- Baker, Dana Lee & Shannon Stokes. (2004, October). *Comparative issue definition in risk related public policy: West Nile virus, Mad Cow disease in North America, and Stem Cell research*. Paper presented at Convergence and Divergence in North America: Canada and the United States conference at Simon Fraser University, Vancouver, Canada.
- Barker, Kristin. (2002). Self-help literature and the making of an illness identity: the case of Fibromyalgia Syndrome (FMS). *Social Problems* 49(3), 279-300.
- Beck, Ulrich. (1992). *Risk society: Towards a new modernity*. London: Sage.
- Beck, Ulrich. (1995). *Ecological politics in an age of risk*. Cambridge: Polity Press.
- Bell, Colleen. (2006). Surveillance strategies and populations at risk: Biopolitical governance in Canada's national security policy. *Security Dialogue*, 37(2), 147–165.
- Bendelow, Gillian, Mark Carpenter, Caroline Vautier, & Simon Williams. (2002). Introduction: Overcoming divisions: Reflections on tradition, change, and critical continuity. In Mark Carpenter, Caroline Vautier, & Simon Williams (Eds.), *Gender, health and healing: The public/private divide* (pp.1-12). London: Routledge.
- Birke, Lynda. (2002). Anchoring the head: The disappearing (biological) body. In Mark Carpenter, Caroline Vautier, & Simon Williams (Eds.), *Gender, health and healing: The public/private divide* (pp.34-48). London: Routledge.
- Brown, Phil, Steve Kroll-Smith, & Valerie Gunter. (2000). Knowledge, citizens, and organizations: An overview of environments, diseases and social conflict. In Steve Kroll-Smith, Phil Brown, & Valerie J. Gunter (Eds.), *Illness and the environment: A reader in contested medicine* (pp. 9-28). New York: New York University Press.

- Busfield, Joan. (2002). The archaeology of psychiatric disorder: Gender and disorders of thought, emotion and behaviour. In Mark Carpenter, Caroline Vautier, & Simon Williams (Eds.), *Gender, health and healing: The public/private divide* (pp.144-162). London: Routledge.
- Canadian Broadcasting Corporation. (2006, October 10). *Indepth West Nile Virus facts*. Retrieved October 20, 2006, from <http://www.cbc.ca/news/background/westnile/>
- Carabine, Jean. (2001). Unmarried motherhood 1830-1990: A genealogical analysis. In Margaret Wetherell, Stephanie Taylor, & Simeon J. Yates (Eds.), *Discourse as data: A guide for analysis* (pp. 267-310). London: Sage.
- Castel, Robert. (1991). From dangerousness to risk. In Graham Burchell, Colin Gordon, & Peter Miller (Eds.), *The Foucault effect: Studies in governmentality* (pp. 281-298). Chicago: University of Chicago Press.
- Conrad, Peter. (1992). Medicalization and social control. *Annual Review of Sociology*, 18, 209-32.
- Conrad, Peter (Ed.). (1995). *The sociology of health and illness: Critical perspectives* (7th ed.). New York: Worth Publishers.
- CTV. (2004, July 19). *West Nile lawsuits can proceed against Ontario*. Retrieved May 28, 2006, from http://www.ctv.ca/servlet/ArticleNews/story/CTVNews/1090253318946_85662518
- CTV. (2006, May 21). *Experts warn against complacency about West Nile*. Retrieved August 10, 2006, from http://www.ctv.ca/servlet/ArticleNews/story/CTVNews/20060521/west_nile_060521/20060521?hub=CTVNewsAt11
- Dean, Mitchell. (1994). A social structure of many souls: Moral regulation, government and self-formation. *The Canadian Journal of Sociology*, 19(2), 145-68.
- Deleuze, Gilles. (1997). Postscript on the societies of control. In N. Leach (Ed.), *Rethinking architecture: A reader in cultural theory* (pp. 309-313). London: Routledge.
- Duden, Barbara. (1991). *The woman beneath the skin: A doctor's patients in eighteenth century Germany* (Thomas Dunlap, Trans.). Cambridge, MA: Harvard University Press.
- Duncan, Sally L. (2006). Mapping whose reality? Geographic information systems (GIS) and "wild science." *Public Understanding of Science*, 15, 411-434.
- Eckermann, Liz. (1997). Foucault, embodiment and gendered subjectivities: The case of voluntary self-starvation. In Alan Petersen & Robin Bunton (Eds.), *Foucault, Health and Medicine* (pp. 151-172). London: Routledge.

- Evans, John & Davies, Brian. (2002). *Body, knowledge, and control*. Retrieved September 8, 2006, from <http://www.aare.edu.au/02pap/dav02293.htm>
- Ewald, Francois. (1991). Insurance and Risk. In Graham Burchell, Colin Gordon & Peter Miller (Eds.), *The Foucault effect: Studies in governmentality* (pp. 197-210). Chicago: The University of Chicago Press.
- Fairclough, Norman. (1989). *Language and power*. Harlow, UK: Longman Group UK Limited.
- Fairclough, Norman. (2001). The discourse of new labour: Critical discourse analysis. In Margaret Wetherell, Stephanie Taylor & Simeon J. Yates (Eds.), *Discourse as data: A guide for analysis* (pp. 229-266). London: Sage.
- First Nations and Inuit Health Branch. (2005a). *West Nile virus and First Nations*. Retrieved July 7, 2005, from http://www.hc-sc.gc.ca/fnih-spni/diseases-maladies/wnv-vno/index_e.html
- First Nations and Inuit Health Branch. (2005a). *West Nile virus activity sheet - Don't let mosquitoes put the bite on you!* Retrieved July 7, 2005, from http://www.hc-sc.gc.ca/fnih-spni/pubs/wnv-vno/2005_activ_sheet-feuillet/index_e.html
- Flick, Uwe. (1998). The social construction of individual and public health: Contributions of social representation theory to a social science of health. *Social Science Information*, 37(4), 639-662.
- Foucault, Michel. (1972). *The archeology of knowledge*. New York: Pantheon Books.
- Foucault, Michel. (1973). *The order of things: An archeology of the human sciences* (A. Sheridan, Trans.). New York: Vintage Books.
- Foucault, Michel. (1980a). *Power and knowledge: Selected interviews and other writings, 1972-1977* (C. Gordon, L. Marshall, J. Mephar, & K. Sopher, Trans.), New York: Pantheon.
- Foucault, Michel. (1980b). *The history of sexuality, volume 1: An introduction*. New York, USA: Vintage Books.
- Foucault, Michel. (1984a). Means of correction. In Paul Rabinow (Ed.), *The Foucault reader* (pp. 189-205). New York: Pantheon.
- Foucault, Michel. (1984b). On the geneology of ethics: An overview of work in progress. In Paul Rabinow (Ed.), *The Foucault Reader*. New York: Pantheon.

- Foucault, Michel. (1988). The ethic of care for the self as a practice of freedom. In James Bernauer & David Rasmussen (Eds.), *The Final Foucault* (J. D. Gauthier, Trans., pp. 1-20). London: The MIT Press.
- Foucault, Michel. (1991). Governmentality. In Graham Burchell, Colin Gordon & Peter Miller (Eds.), *The Foucault Effect: Studies in Governmentality* (pp. 87-104). Chicago: The University of Chicago Press.
- Foucault, Michel. (1995). *Discipline and punish: The birth of the prison* (2nd ed., A. Sheridan, Trans.). New York: Vintage Books.
- Foucault, Michel. (2003). *The Birth of the clinic* (1st ed.). London: Routledge.
- Fox, Nick. J. (1994). *Postmodernism, sociology, and health*. Toronto: University of Toronto Press.
- Gaard, Greta. (Ed.). (1993). *Ecofeminism: Women, animals, nature*. Philadelphia: Temple University.
- Gastaldo, Denise. (1997). Is health education good for you? Re-thinking health education through the concept of bio-power. In Alan Petersen & Robin Bunton (Eds.), *Foucault, Health and Medicine* (pp. 113-133). London: Routledge.
- Glassner, Barry. (1999). *Culture of fear: The assault on optimism in America*. New York: Basic Books.
- Gordon, Colin. (1991). Governmental rationality: An introduction. In Graham Burchell, Colin Gordon, & Peter Miller (Eds.), *The Foucault effect: Studies in governmentality* (pp. 1-54). Chicago: University of Chicago Press.
- Gore, Jennifer M. (1993). *The struggle for pedagogies: Critical and feminist discourses as regimes of truth*. New York: Routledge.
- Gore, Jennifer M. (1994, November). Power and pedagogy: Within and beyond the schooling institution. Paper presented at the Annual Conference of the Australian Association for Research in Education, Newcastle, Australia.
- Gore, Jennifer M. (1995). On the continuity of power relations in pedagogy. *International Studies in Sociology of Education*, 5(2), 165-188.
- Gore, Jennifer M. (1997). *Who has the authority to speak about practice and how does it influence educational inquiry?* Paper presented at the Australian Association for Research in Education (AARE) Conference, Brisbane, Australia.
- Gore, Jennifer M. (2002). Micro-level techniques of power in the pedagogical production of class, race, gender and other relations. In H.S. Shapiro & S. Shapiro (Eds.), *Body*

- movements: Pedagogy, politics and social change* (pp.75-96). Cresskill, NJ: Hampton Press.
- Gore, Jennifer M. & Gitlin, A. D. (2003). [Re]Visioning the academic-teacher divide: Power and knowledge in the educational community. *Teachers and Teaching: Theory and Practice*, 10(1), 35-58.
- Gore, Jennifer M. & Morrison, K. (2001). The perpetuation of a (semi-) profession: Challenges in the governance of teacher education. *Teaching and Teacher Education*, 17, 567-582.
- Goudsmit, Jaap. (2004). *Viral fitness: The next SARS and West Nile in the making*. New York: Oxford University Press.
- Harding, Jennifer. (1997). Bodies at risk: Sex, surveillance and hormone replacement therapy. In Alan Petersen & Robin Bunton (Eds.), *Foucault, Health and Medicine* (pp. 134-150). London: Routledge.
- Hawaleshka D. (2003). Waiting for West Nile. *Maclean's*, 116, 16-23.
- Hay, S. I. (2000). An overview of remote sensing and geodesy for epidemiology and public health application. *Advances in Parasitology: Remote Sensing and Geographical Information Systems in Epidemiology*, 47, 1-35.
- Health Canada. (2003a). *Health Canada is coordinating a national approach to West Nile virus*. Retrieved July 8, 2005, from http://www.hc-sc.gc.ca/english/media/releases/2003/2003_22.htm
- Health Canada. (2003b). *Health Canada launches national West Nile virus public education campaign*. Retrieved July 8, 2005, from http://www.hc-sc.gc.ca/english/media/releases/2003/2003_57.htm
- Health Canada. (2003c). *News release: Health Canada launches national West Nile virus public education campaign*. Retrieved July 31, 2003, from www.hc-sc.gc.ca/english/media/releases/2003/2003_57.html
- Hertz, Rosanna (Ed.). (1997). *Reflexivity and voice*. Thousand Oaks: Sage.
- Hill Collins, Patricia. (2000). *Black feminist thought: Knowledge, consciousness, and the politics of empowerment* (2nd ed). New York: Routledge.
- Jenkins, Richard. (2002). *Foundations of sociology*. London: Palgrave MacMillan.
- Johnson, Hillary. (1996). *Osler's web: The labyrinth of the chronic fatigue syndrome epidemic*. New York: Crown Publishers.

- Jones, Richard. (2000). Digital rule punishment, control and technology. *Punishment and Society*, 2(1), 5- 22.
- Keenan, Elizabeth King. (2001). Using Foucault's 'disciplinary power' and 'resistance' in cross-cultural psychotherapy. *Clinical Social Work Journal*, 29 (3), 211-227.
- Kendall, Gavin & Wickham, Gary. (1999). *Using Foucault's methods*. London: Sage.
- Kroll-Smith, Steve, Phil Brown, & Valerie J. Gunter (Eds.). (2000). *Illness and the environment: A Reader in contested medicine*. New York: New York University Press.
- Kusch, Martin. (1991). *Foucault's strata and fields: An investigation into archaeological and genealogical science studies*. London: Kluwer Academic Publishers.
- Laing, Ronald, D. (1964). *Sanity, madness and the family, volume 1: Families of schizophrenics*. London: Tavistock.
- Lemke, Thomas. (2001). The birth of bio-politics – Michel Foucault's lecture at the Collège de France on neo-liberal governmentality. *Economy and Society*, 30(2), 190-207.
- Lemke, Thomas. (2002). Genetic testing, eugenics, and risk. *Critical Public Health*, 12 (3), 283-290.
- Lemke, Thomas. (2003, September). *Risk as responsibility: Genetic diagnosis, moral obligations and consumer choices*. Paper presented at the Vital Politics conference at the London School of Economics and Political Science, London.
- Lemke, Thomas. (2004). A new understanding of health and disease. In Günter Stock & Monika Lessl (Eds.), *A new understanding of health and disease* (pp. 10-18), Berlin, Germany: Schering Research Foundation.
- Lorber, Judith & Lisa Jean Moore. (2002). *Gender and the social construction of illness*. Walnut Creek, CA: Altamira Press.
- Lupton, Deborah. (1994). *Medicine as culture: Illness, disease and the body in western societies*. London: Sage.
- Marshall, Gordon. (1998). *Oxford dictionary of sociology*. Oxford: Oxford University Press.
- Martin, Emily. (1994). *Flexible bodies: The role of immunity in American culture: From the days of Polio to the age of AIDS*. Boston: Beacon Press.
- Mauro, Ryan. (2002). *West Nile virus: The underreported allegations*. Retrieved September 12, 2006, from <http://www.worldthreats.com/index.html>

- Mellamphy, Dan & Mellamphy, Nandita Biswas. (2005). In 'descent' proposal: Pathologies of embodiment in Nietzsche, Kafka, and Foucault. *Foucault Studies*, 3, 27-48.
- Merchant, Carolyn. (1980). *Death of nature: Women, ecology and the scientific revolution*. San Francisco: Harper and Row.
- Morshed, Muhammad G. (2002, Winter). The West Nile virus in North America: Coast-to-coast? *CMPT Connections*, 6(4). Retrieved July 20, 2005, from <http://www.hc-sc.gc.ca/pphb-dgspsp/wnv-vwn/>
- Moss, Pamela & Dyck, Isabel. (2002). *Women, body, illness: Space and identity in the everyday lives of women with chronic illness*. Lanham, MD: Rowman and Littlefield Publishers.
- O'Connor, Roy Elliott Kim. (2002). *Roy Elliott Kim O'Connor West Nile virus group action*. Retrieved May 28, 2006, from <http://www.reko.ca/westnile.html>
- Office of Laboratory Security, Public Health Agency of Canada. (2003a). *Material safety data sheet – Infectious substances*. Retrieved July 7, 2005, from <http://www.phac-aspc.gc.ca/msds-ftss/msds175e.html>.
- Office of Laboratory Security, Public Health Agency of Canada. (2003b). *Biosafety advisory: West Nile virus*. Retrieved May 12, 2006, from http://www.phac-aspc.gc.ca/ols-bsl/wnvbio_e.html
- Packard, Randall, M., Brown, Peter, Berkelman, Ruth & Frumkin, Howard. (Eds.). (2004). *Emerging illnesses and society: Negotiating the public health agenda*. Baltimore, MD: The John Hopkins University Press.
- Petersen, Alan. (1997). Risk, governance and the new public health. In Alan Petersen and Robin Bunton (Eds.), *Foucault, Health and Medicine* (pp. 189-206). London: Routledge.
- Privy Council Office, Canada. (2004). *Securing an open society: Canada's national security policy*. Ottawa, Canada: National Library of Canada.
- Public Health Agency of Canada. (2003a). *Brochure for the general population*. Retrieved July 7, 2005, from http://www.phac-aspc.gc.ca/wn-no/materials/general-grandpublic_e.html
- Public Health Agency of Canada. (2003b). *Transmission*. Retrieved July 7, 2005, from http://www.phac-aspc.gc.ca/wn-no/transmission_e.html
- Public Health Agency of Canada. (2003c). *Canada communicable disease report: Ontario's 2003 West Nile virus public education campaign: Was anybody listening?* Retrieved August 10, 2006, from <http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/03vol29/dr2922ea.html>

- Public Health Agency of Canada. (2004a). *News release: Government of Canada appoints first chief public health officer to head public health agency of Canada*. Retrieved May 19, 2006, from http://www.phac-aspc.gc.ca/media/nr-rp/2004/phac_nr_e.html
- Public Health Agency of Canada. (2004b). *Frequently asked questions*. Retrieved May 18, 2006, from http://www.phac-aspc.gc.ca/media/nr-rp/2004/faq_e.html
- Public Health Agency of Canada. (2004c). *What the public health agency of Canada is doing*. Retrieved July 7, 2005, from http://www.phac-aspc.gc.ca/wn-no/role_e.html
- Public Health Agency of Canada. (2004d). *Surveillance, education, prevention and response*. Retrieved July 7, 2005, from http://www.phac-aspc.gc.ca/wn-no/surveillance_e.html#5
- Public Health Agency of Canada. (2004e). *General overview*. Retrieved July 7, 2005, from http://www.phac-aspc.gc.ca/wn-no/gen_e.html
- Public Health Agency of Canada. (2004f). *Fact sheets*. Retrieved July 7, 2005, from http://www.phac-aspc.gc.ca/wn-no/factsheets_e.html
- Public Health Agency of Canada. (2004g). *Symptoms, diagnosis and treatment*. Retrieved July 7, 2005, from http://www.phac-aspc.gc.ca/wn-no/symptom_e.html
- Public Health Agency of Canada. (2004h). *Workplace health and public safety programme*. Retrieved July 7, 2005, from http://www.phac-aspc.gc.ca/wnv-vwn/work_wnv_e.html
- Public Health Agency of Canada. (2004i). *Protect yourself from West Nile virus – Transcript*. Retrieved July 7, 2005 from http://www.phac-aspc.gc.ca/wn-no/materials/video1_transcript_e.html
- Public Health Agency of Canada. (2004k). *Pregnancy and breastfeeding*. Retrieved July 7, 2005, from http://www.phac-aspc.gc.ca/wn-no/preg-gros_e.html
- Public Health Agency of Canada. (2005a). *West Nile virus - Protect yourself!* Retrieved July 7, 2005, from http://www.phac-aspc.gc.ca/wn-no/index_e.html
- Public Health Agency of Canada. (2005b). *West Nile virus monitor*. Retrieved July 7, 2005, from http://www.phac-aspc.gc.ca/wnv-vwn/mon_e.html#nsr
- Public Health Agency of Canada. (2005c). *History*. Retrieved July 7, 2005, from http://www.phac-aspc.gc.ca/wn-no/hist_e.html
- Public Health Agency of Canada. (2005d). *How to protect yourself and your family*. Retrieved July 7, 2005, from http://www.phac-aspc.gc.ca/wn-no/protect_e.html

- Public Health Agency of Canada. (2006a). *First Canadian case of variant Creutzfeldt-Jakob Disease (Variant CJD)*. Retrieved May 19, 2006, from http://www.phac-aspc.gc.ca/cjd-mcj/vcjd-ca_e.html
- Public Health Agency of Canada. (2006b). *SARS (Severe Acute Respiratory Syndrome) outbreak period*. Retrieved May 19, 2006, from <http://www.phac-aspc.gc.ca/sars-sras/sars.html#numbers>
- Public Health Agency of Canada. (2006c). *Avian Influenza*. Retrieved May 19, 2006, from http://www.phac-aspc.gc.ca/influenza/avian_e.html
- Rentschler, Carrie A. (2003). Designing fear: How environmental security protects property at the expense of people. In Jack Z. Bratich, Jeremy Packer, & Cameron McCarthy (Eds.), *Foucault, cultural studies and governmentality* (pp. 243-272). New York: State University of New York Press.
- Repetto, Robert & Baliga, Sanjay S. (1996). *Research report: Pesticides and the immune system: The public health risks*. Washington, DC: World Resources Institute.
- Rouse, Joseph. (1994). Power/Knowledge. In Gary Gutting (Ed.), *The Cambridge Companion to Foucault* (pp. 95-122). Cambridge, UK: Cambridge University Press.
- Saavedra, Rosa M. (2000). Farmworker and farmer perceptions of farmworker agricultural chemical exposure in North Carolina. In Steve Kroll-Smith, Phil Brown, & Valerie J. Gunter (Eds.), *Illness and the Environment: A Reader in Contested Medicine* (pp. 175-191). New York: New York University Press.
- Sandilands, Catriona. (1999). *The good natured feminist: Ecofeminism and the quest for democracy*. Minneapolis, MN: University of Minnesota Press.
- Science Daily. (2004, January 14). *Researchers develop model to help control West Nile outbreak*. Retrieved September 12, 2006, from <http://www.sciencedaily.com/releases/2004/01/040114080012.htm>
- Sejvar, James J. (2003). West Nile virus: An historical overview. *The Ochsner Journal*, 5(3), 6-10.
- Shapiro, H. & Micucci, S. (2003). Pesticide use for West Nile virus. *Canadian Medical Association Journal*, 168, 1427-1430.
- Shilling, Chris. (1993). *The body and social theory*. London: Sage.
- Shilling, Chris. (2005). *The body in culture, technology and society*. London: Sage.
- Sturgeon, Noel. (1997). *Ecofeminist natures: Race, gender, feminist theory and political action*. New York: Routledge

- Sugg, William, C. & Wilson, Mathew L. (2006). A report by Toxics Action Centre and the Maine Environmental Policy Institute. Retrieved July 12, 2006, from <http://www.toxicsaction.org/>
- The Toronto Star. (2003, February 19). *Ontario: Doctors say number of fatalities in 2002 underestimated*. Retrieved July, 2, 2006 from <http://environmentalrisk.cornell.edu/WNV/WNV-LArchive/0872.html>
- Thompson, Kenneth. (1998). *Moral panics*. London: Routledge.
- Treasury Board of Canada Secretariat. (2005). *RPP 2005-2006 Public Health Agency of Canada - Infectious disease prevention and control*. Retrieved May 20, 2006, from http://www.tbs-sct.gc.ca/est-pre/20052006/PHAC-ASPC/PHAC-ASPCr5602_e.asp
- Turner, Brian. (1992). *Regulating bodies: Essays in medical sociology*. London: Routledge.
- Turner, Bryan, S. (1997). Forward: From governmentality to risk, some reflections on Foucault's contribution to medical sociology. In Alan Petersen & Robin Bunton (Eds.). *Foucault, Health and Medicine* (pp. vii-xix). London: Routledge.
- Widener, Patricia. (2000). Lead contamination in the 1990s and beyond: A follow-up. In Steve Kroll-Smith, Phil Brown, & Valerie J. Gunter (Eds.), *Illness and the environment: A reader in contested medicine* (pp. 258-269). New York: New York University Press.
- Williams, Simon. (2002). Corporeal reflections on the biological. In Gillian Bendelow, Mick Carpenter, Caroline Vautier, Simon Williams (Eds.), *Gender, health and healing: The public/private divide* (pp. 13-33). London: Routledge.
- Wright, Jan. (2000). Disciplining the body: Power, knowledge and subjectivity in a physical education lesson. In Alison Lee & Cate Poynton (Eds.), *Culture and text: Discourse and methodology in social research and cultural studies* (pp. 152-169). Lanham, MD: Rowman and Littlefield Publishers.
- Wrubleski, Dale. (2004). West Nile story: One year later. *Conservator*, 25(1), 32-35. Retrieved May 1, 2006, from <http://www.ducks.ca/conserved/issues/pdf/wnv251.pdf>