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**“The 'Gardasil Controversy' in Canada:
A Study of Print Media Portrayals
Preceding, Surrounding and Following Federal Investment in a
National Human Papillomavirus (HPV) Immunization Program”**

by

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**A Thesis Submitted to the Faculty of Graduate Studies and Research
in partial fulfilment of the requirements for the degree of
Master of Social Work**

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Abstract

In early July 2006, Merck & Co., Inc.'s HPV vaccine Gardasil was approved by Health Canada for use in humans in Canada. Eight months later in March 2007, Finance Minister Jim Flaherty announced the federal government's decision to invest \$300 million in a publicly-funded national program to immunize girls and women between the ages of nine and thirteen with the HPV vaccine Gardasil. Yet there were no consultations with the provinces/territories, with public health officials, or with community organizations. The author undertook a content analysis of Canadian print media coverage of the Gardasil controversy to assess how these events were presented in English Canada and Québec. A diverse sample of newspaper and newsmagazine articles were analyzed. Four major themes were found: depictions of Gardasil, the importance of screening, sex, and cost. However, certain sub-themes were absent, downplayed or over-emphasized in English-Canada and Québec.

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Chapter 1: Introduction

In 1955 the inactivated poliomyelitis vaccine (IPV) was unveiled in Canada as the miracle drug that would end the scourge of polio (PHAC 2006). Since then, no other public health measure has been wholeheartedly supported by politicians or has gone as quickly from regulatory approval to mass use in a government-funded program as the human papillomavirus (HPV) vaccine Gardasil. Merck's vaccine against HPV infection is being promoted as a means to eradicate cervical cancer. However, unlike polio, cervical cancer develops slowly and thus, the effectiveness of the HPV vaccine will not be observable for decades (Picard 2007, A1). Moreover, there are numerous unanswered questions regarding the vaccine and the mass immunization program, including the fact that the federal government has not outlined the goals of its proposed national immunization program, announced on 19 March 2007. Yet the momentum to vaccinate Canadian girls with Gardasil and to invest millions of dollars in an HPV vaccine is fierce (Picard 2007, A1).

The debate concerning mass immunization developed from April 16, 2007 until November 14, 2008 with clearly defined rivals. Catholic school boards and women's health advocates were opposed while government officials, politicians and medical professionals supported vaccination. Media coverage of the opposing sides featured the repetitive use of the words 'critique' and 'controversy.' These terms were consistently used to

describe the events and opinions being reported. Eventually, the word ‘controversy’ was applied as a label to the events and journalists began discussing the ‘controversy’ of Gardasil or of the HPV vaccine, rather than factual events. The controversy was over the necessity of vaccination and the sexually-related nature of the HPV vaccine. Therefore, ‘the Gardasil controversy’ is an appropriate name for this issue and is the chosen title used throughout this thesis.

Research Question

In this thesis, I analyse the manner in which the Canadian print media represented the events preceding, surrounding, and following the federal government's decision to allocate “\$300 million in per capita funding to provinces and territories to support the launch of a national human papillomavirus vaccine program to protect women against cancer of the cervix” announced on 19 March 2007 (<http://www.budget.gc.ca/2007/themes/papemhe.html>). My main research question is whether the print media's representation of these events influenced the development of what came to be the Gardasil controversy. Did the media shape or filter information regarding the events and the actors involved?

My analysis includes a thorough examination of recent print media treatment of HPV, cervical cancer, and the Gardasil vaccine. I decided to

exclude electronic media in order to undertake a more thorough study of print media. Though there have been studies on specific issues regarding the HPV vaccine, such as parental acceptance of the vaccine (Olshen et al. 2005) and paediatricians' intention to vaccinate (Kahn et al. 2005), the media's treatment of the issues surrounding the Gardasil vaccine has not been examined.

My research has important implications for the ongoing discussion of this controversy. Since this issue is very recent, an analysis of the role of print media in constructing the Gardasil controversy has not been conducted. It is my hope that this research will clearly demonstrate the filters and biases that were present in the print media throughout the controversy about the Gardasil vaccine and which subsequently came to form the body of mainstream or common knowledge that the majority of the Canadian public relied on to make their 'informed' decisions. This research aims to identify if and how the presentation of information regarding HPV infection, cervical cancer and the Gardasil vaccine may have been influenced by the biases of the Canadian print media. My thesis will shed light on the development, articulation and representation of what I have termed 'the Gardasil controversy' in Canadian print media.

Key Concepts

This section will introduce the key concepts necessary to understand the Gardasil controversy, such as the incidence of HPV and cervical cancer, and media studies theories. The human papillomavirus (HPV) is the most common sexually transmitted infection (STI) in Canada (http://www.hc-sc.gc.ca/iyh-vsv/diseases-maladies/hpv-vph_e.html). According to Health Canada, 75% of Canadians will contract HPV at some point in their life (Gulli 2006). Over 100 types of HPV have been identified (Dobson et al. 2007, 1). There are 35 strains of HPV that infect the genitals and reproductive organs. Within these 35 types there are both high-risk and low-risk strains (Norsigian 2007, 15). High-risk HPV infections may cause cancer if they persist and are accompanied by other factors, such as a compromised immune system, poor nutrition or smoking. Thus, a high-risk HPV infection will not necessarily lead to cervical cancer, although an HPV infection is necessary for the development of cervical cancer. Low-risk HPV infections are less frequently associated with cancer; however, they may cause genital warts. Most individuals with a healthy immune system can eliminate HPV from their bodies with or without treatment within three years. The average amount of time for elimination is between nine and thirteen months. Treatment for genital warts includes using liquid nitrogen topically or

surgically removing warts. Most women who develop an HPV infection do not develop cervical cancer (<http://www.phac-aspc.gc.ca/naci-ccni/>).

The process of creating a news story is called framing or agenda setting (Higgins et al. 2006, 344). In framing, certain points of view are selectively presented and boundaries are created around an issue to decide what and how it will be discussed, and most importantly, how it will not be discussed (Altheide 1996, 3 cited in Higgins et al. 2006, 344). Applying a frame analysis can be used to reveal which discourses are prominent in the media. In media coverage, news filters and blind spots exist which result from journalists' own biases. However, it is difficult to assess whether news filters are the result of journalists' conscious or unconscious biases.

In regards to health issues, the media “are key sources in defining importance and relevancy” (Higgins et al. 2006, 344). One of the reasons for this influence is that the mass media has a much farther reach than the health profession (Higgins et al. 2006, 345). In essence, the media become the “primary source of health education, medical and clinical information for informing behavior change, health care interventions, or health service utilization” (Higgins et al. 2006, 345). As Lawrence Wallack asserts, mass media can be a powerful tool for promoting health either as “a valuable and willing partner” or as “a barrier to overcome” (1999, 147). In the latter relationship health issues are individualized, or presented as the problems and responsibilities of individuals rather than as social issues. Therefore, “the political nature of public health promotion is trivialized or ignored,

and the social roots of health and disease are seldom presented” (Wallack 1999, 153). Wallack states that, “While public health issues are, to a large extent, socially generated, mass media reinforce individual-level explanations” (cited in Gasher et al. 2007, 562). The trivialization of health issues occurs through three processes: “reduction of health issues to individual-level concerns; the promotion of consumer products without attention to public health concerns; and reinforcement of social and economic arrangements” (Wallack cited in Gasher et al. 2007, 562). Moreover, print media tend to report health news in terms of health care. For example, Gasher and colleagues found that the structure of daily newspapers' health beats was closely tied to the people and institutions that comprise the health care sector. Therefore, their news stories are less about health and more about health care (Gasher et al. 2007, 570).

Gender-based analysis (GBA) compares how women and men are affected by policy issues by challenging the notion that everyone is affected in the same way regardless of gender (Health Canada 2003, 4). The potentially differential effects of policies, programs and legislation can often be obscured or masked by assumptions of universal application. However, when gender is explicitly considered in policy analysis, these effects are revealed. One of the fundamental premises of GBA is that everything can and should be subjected to GBA because all issues have differential impacts on women and men even though they may not appear to be gendered. This is extremely pertinent to my analysis of the print

media treatment of the adoption of a female-only national immunization program. GBA is a tool for understanding social processes and responding with informed and equitable options. A gender-based analysis makes it possible for policy to be undertaken with the appreciation of sex and gender differences, the nature of relationships between women and men, and of their different social realities, life expectations and economic circumstances.

Background

The vaccine Gardasil was developed by Merck & Co., Inc. and protects against four strains of the human papillomavirus (HPV): types 6, 11, 16, and 18. Gardasil is a recombinant vaccine and an active immunizing agent that is administered intramuscularly in three injections (Health Canada 2007). Two of these strains, HPV types 16 and 18, lead to high-risk infections and are responsible for 70% of cervical cancer cases in Canadian women. Types 6 and 11 cause low-risk infections and may cause genital warts. Gardasil costs \$404 CAD for the three recommended doses. Gardasil is proven effective for at least five years in preventing HPV types 16 and 18 in women who are not HPV-positive at the time of first vaccination (Harper & Paavonen 2008).

Merck Frosst Canada Ltd. submitted Gardasil for review to Health Canada's Health Products and Food Branch (HPRB) on 12 December 2005

(HPRB 2007). The Gardasil vaccine was approved seven months later on 10 July 2006. On 15 February 2007 the National Advisory Committee on Immunization (NACI) recommended that all Canadian girls and women aged nine to 13 be immunized with Gardasil (Dobson et al. 2007). The NACI is “a national committee of recognized experts in the fields of pediatrics, infectious diseases, immunology, medical microbiology, internal medicine and public health” who “make[s] recommendations for the use of vaccines currently or newly approved for use in humans in Canada” (<http://www.phac-aspc.gc.ca/-ccni/>).

Encouraged by NACI's endorsement of Gardasil, the federal government decided to publicly fund the vaccine. According to Budget 2007, “\$300 million in per capita funding for provinces and territories [was allocated] to support the launch of a national human papillomavirus vaccine program to protect women against cancer of the cervix.” On March 19, 2007 Finance Minister Jim Flaherty announced this investment to immunize girls and women between the ages of nine and thirteen with the HPV vaccine Gardasil (Picard 2007).

This research topic merits investigation for many important reasons. The unusual speed with which approval and investment of this vaccine occurred makes the public particularly vulnerable to media perceptions for information. My preliminary research demonstrates that the federal government's decision to invest \$300 million in the Gardasil vaccine has been welcomed with hesitance by the majority of Canadians. Yet the

context surrounding this decision has involved unusual proceedings and has been mired with silences regarding relevant topics, such as the vaccine's immunity protection and the gendered impacts of the immunization program.

First, this public health policy was devised, approved and put into place much more quickly than is normal for policies. During this process, there was no dialogue between the federal government and the provinces and territories. In fact, Finance Minister Flaherty's announcement stunned public health officials and the provinces, who were alarmed about the manner in which the decision was made (Picard, 2007). Public health officials, community organizations and women's groups were left out of the planning phase. The government failed to liaise with women's health organizations in order to determine the need and potential benefits of such a widespread public health initiative. Community organizations were not consulted about the potential uptake of a sexual health vaccine for young girls. Public health officials were not consulted regarding the feasibility of such an expensive and nation-wide program.

The effect of this lack of consultation is apparent in the reactions of those who were left out. For instance, the large sum of public money that was devoted to this vaccine raised concerns within the public health community. However, since the Canadian public health care system has limited resources and is said to be 'in crisis,' this reaction is not surprising. Moreover, the fact that this vaccine had only recently been approved by

Health Canada and had yet to be administered to Canadian girls and women garnered criticism from feminists and women's health advocates.

In March 2007, evidence surfaced that cabinet members were being lobbied by the drug maker Merck Frosst. This would imply that the federal government may have made a hasty decision under pressure from lobbyists and based on information provided by the maker of the vaccine, the pharmaceutical company Merck Frosst. Certainly, it is astonishing that a \$300 million investment would be deliberated for such a short period of time. As Anne Rochon-Ford commented, "It is staggering how quickly and secretly this has all happened and that points to some pretty active footwork behind the scenes" (Picard 2007, A1).

There have been silences surrounding the federal government's plan to immunize all Canadian girls and women with Gardasil. This controversial program has the potential to reinforce gender inequalities because it only targets girls and women even though boys and men are carriers and can also be infected by the HPV virus. This can, and may, have the unintended consequence of reducing men's role and responsibility in sexual health. According to my preliminary research, the most obvious silence has persisted in print media. Within print media coverage of the Gardasil controversy, gender was mentioned several times in terms of the depiction of the Gardasil vaccine as a breakthrough for women's health. Yet, gender was not considered in terms of its significance in relation to the issues discussed nor in regards to the gendered impacts of the

immunization program. Although both women and men are carriers of the human papillomavirus, the federal immunization program targets only young girls and women. In feminist theory, this silence regarding gender is referred to as the invisibility of women. This invisibility is disturbing both due to the gendered nature of the national immunization program and due to the fact that a gender-based analysis of any health program is imperative. An analysis of print media may help to better understand the articulation of the Gardasil controversy in Canada.

This public policy concerns not only women's health but also public health. Therefore, the implications of a \$300 million investment are germane across numerous disciplines. This topic is significant to social work because the field of social policy, which greatly determines what social services and resources are available to Canadians, is influenced by mass media. This issue concerns all Canadian citizens because HPV affects both women and men, young and old.

Chapter 2: Theory and Methodology

Theory

Establishing a theoretical basis to inform my print media analysis was an ongoing, iterative process. Provisionally, three areas of study were identified that could help to guide my research: gender-based analysis, the political economy of health, and media studies, which is discussed later in the Literature Review section. However, since the relationship between research and theory is a reciprocal one, it was acknowledged that other theoretical areas might prove to be more appropriate during the course of research.

First, I applied a feminist and gender-based framework throughout my analysis. I referred to documents that outline the process and implementation of GBA, such as the 1996 *Status of Women Canada* guidebook and the more recent 2003 document by the Women's Health Bureau of Health Canada which I consulted in my preliminary research. I also researched any feminist theories or concepts that became germane during the course of my research, such as feminist silences and the invisibility of women.

In regards to the second area of theoretical study, I applied a definition of the political economy of health that is derived from a combination of two sources. Political economy has been described as “the

study of power derived from or contingent on a system of property rights; the historical development of power relationships; and the cultural and social embodiments of them” (Marchak 1985, 673) and as “the complex of institutions and relations that constitute not only what are conventionally referred to as the political and economic systems but also the social, physical, ideological and cultural systems” (Armstrong & Armstrong 1996, 5). Here, it is understood as the political and economic institutions, and the social, ideological and cultural systems as well as the power relations that are derived from and through them.

Methodology

I chose the perspective of a print media analysis rather than analyzing the Gardasil controversy from a public policy or public health education perspective because information regarding HPV infection, cervical cancer and Gardasil was criticized for being misleading or misrepresented (Lippman et al. 2007; Norsigian et al. 2007; Sherris et al. 2006). The media's influence in shaping and filtering information about events appears to have been a salient factor in the articulation of the Gardasil controversy. However, this variable was not given much, if any, attention. In my opinion, this is the most interesting aspect of the Gardasil controversy as it is the very distortion or omission of facts which triggered the controversy surrounding Gardasil and the federal government's \$300

million investment. Moreover, the public was continually bombarded by inconsistent messages concerning this vaccine since its approval by Health Canada in July 2006. This claim of misinformation combined with the public's vulnerability to media perceptions provides impetus for an analysis of print media representations.

I examined print media from 10 July 2006, when Health Canada approved the Gardasil vaccine, until 1 January 2009, approximately five months after negative side effects of the Gardasil vaccine were first published. No pertinent information was published thereafter; thus, the end date of 1 January 2009 was maintained. Since print media treatment of the Gardasil controversy was being analysed, it was logical for the start date to be the vaccine's first introduction into the Canadian context. Using similar logic, the end date allowed time for the media response to the admission of the negative side effects to be examined.

Print media included English and French language newspapers and news magazines. Within both groups there were articles that critique and support the federal government's decision to invest in the proposed national immunization program were included. In order to provide a broad perspective of Canadian print media, newspapers of importance in terms of readership or corporate influence were chosen.

For English language newspapers, six newspapers were chosen: *The Gazette*, *Globe and Mail*, *National Post*, *Ottawa Citizen*, *Toronto Sun*, and *Vancouver Sun*. For all newspapers except the *Toronto Sun*, the Canadian

Newsstand databases through ProQuest was used. The parameters of the search included the terms: “*human papillomavirus*” OR “*HPV*”; AND “*cervical cancer*”; AND “*vaccin**” OR “*Gardasil*” in “Citation and abstract” in order to locate all articles with these terms in either the headline or lead paragraphs. This search yielded 77 documents. However, in order to omit letters to the editor in the results, the option of “Newspapers” instead of “All Sources” was selected. The resulting documents totalled 60. The *Toronto Sun* was the only newspaper in the sample that was not available via the Canadian Newsstand database. Therefore, it was accessed through the LexisNexis database. The search used the same terms in “Headline and Lead Paragraphs,” which is the equivalent of Canadian Newsstand's “Citation and abstract” option. This yielded seven documents, bringing the total of English language newspaper articles to 67.

It was decided that the *Globe and Mail* should be included because it is Canada's highest selling national newspaper and the *National Post* would provide a comparative perspective. The *Ottawa Citizen* was included in order to provide a perspective from the nation's capital. The *Vancouver Sun* was included because it is controlled by Canwest Global Communications Corporation, which operates one of Canada's largest newspaper chains, reaching 4.8 million readers and is Canada's largest media company. Moreover, the *Vancouver Sun* “generates the largest circulation of any Canwest newspaper in a city market” (Canwest Global

Communications Corporation) and has the highest readership of Canwest's ten daily metro newspapers.

To provide an English comparison to the French language newspapers of Montreal, *The Gazette* was included, because it is Canada's oldest newspaper having been established in 1778 (Canwest). I did not include newspapers from any other cities nor from the provinces of the Prairies or the Maritimes because none have a large enough readership or corporate influence. In consideration of the exploratory nature of this thesis, I believe that the analysis proposed will still be of significance due to the extended timeline being examined.

The *Toronto Sun*, which is a daily tabloid newspaper and a division of Sun Media Corporation, a subsidiary of Quebecor, was included. Quebecor is the owner of Osprey Media and Sun Media Corporation, which is now the largest newspaper publisher in Canada. Together, Osprey Media and Sun Media Corporation represent over 225 dailies and weeklies throughout Canada. Clearly, this corporation merited inclusion in my research due to its extensive influence in Canadian mass media.

For French language newspapers, three newspapers were chosen: *La Presse*, *Le Devoir* and *Le Journal de Montréal*. *La Presse* and *Le Devoir* are available through the Newscan database; however, *Le Journal de Montréal* is not available through any online database. Therefore, it was necessary to use the partial microfilm holdings at Library and Archives Canada in Ottawa. Their holdings, spanning from June 1964 until

December 1986 and beginning again from 1988 onwards, include the time frame needed for my research. However, there is a three month delay from print copy to microfilm but a print copy of newspapers is kept until microfilm is available. Thus, no difficulties were encountered in locating recent articles.

In regards to conducting an equivalent search of articles in *Le Journal de Montréal*, these searches were completed manually. After no results were yielded for the duration of twenty days (from 11 July 2007 to 31 July 2007), and in consideration of the fact that it is a daily newspaper, the decision was made to refocus the searches to targeted dates on which articles were found in the other two newspapers. This cross-referencing search technique yielded five articles, all of which were published on dates that other articles appeared, namely 19 July 2006; 4 December 2006; 22 May 2007; 12 April 2008; and 28 October 2008. These articles had more or less the same content as the other articles printed. In fact, except for the 28 October 2008 article that mirrored a piece in *Le Devoir*, the *Journal de Montréal* articles echoed articles from *La Presse*.

I used the French equivalent of the English search terms: “*virus du papillome humain*” OR “*cancer du col de l’utérus*”; AND “*vaccin**” OR “*Gardasil*” in “the lead.” Aside from *Le Journal de Montréal*, this yielded 20 documents for French language newspapers.

I looked at *La Presse*, which is owned by Gesca Limitée, a subsidiary company of Power Corporation that “holds a 100 per cent

interest in the Montréal daily newspaper *La Presse* and six other daily newspapers in the provinces of Québec and Ontario” (Power Corporation). I decided to include *La Presse* because, much like Canwest's ownership of the *Vancouver Sun*, this newspaper is controlled by a multi-million dollar corporation with interests in other industries. This provides an appropriate French language counterpart, along with representing the print media treatment of the Gardasil controversy from one of Canada's largest cities, Montréal.

I looked at *Le Devoir* to provide a comparative perspective because it is the only independent large-circulation newspaper in Quebec (*Le Devoir*). I included *Le Journal de Montréal* as the French-language counterpart to the *Toronto Sun* because it is a daily tabloid newspaper and thus, caters to a different readership. Like the *Toronto Sun* it is owned by Quebecor Media, a subsidiary of Quebecor, which is “one of Canada's largest media companies” (Quebecor).

For English language news magazines, I looked at *Macleans* because it is “Canada's only national weekly current affairs magazine,” it has been popular since 1911 and has a readership of 2.8 million (*Macleans*). For French language newsmagazines, I looked at *L'actualité*, which is the French language equivalent of *Macleans*. Both of these newsmagazines are available through the CBCA Current Events database. I combined the English and French search terms in equivalent sets in “Citation and document text.” This yielded 6 documents for English and

French language newsmagazines.

The total number of articles reviewed was 98. In terms of the method of analysis, it was decided that it would be best to let the articles speak for themselves. However, my examination was guided, though not determined, by the lessons learned from the literature review. While reading the articles, I was not looking for a predefined list of key words or themes; rather, I remained open to what emerged. Using my theoretical perspective of a feminist, gendered political economy analysis, I conducted close readings of all the articles and generated a list of items that were repeatedly mentioned in the articles. Then, I went back to see how these identified items were contextualized and if there were apparent patterns, similarities or silences.

Exclusions

Upon reviewing all 75 articles that the database search parameters had identified, it was discovered that some articles were irrelevant. Although the search terms were carefully chosen in consultation with a reference librarian who specializes in Journalism & Communication, it appears that some irrelevant articles filtered through. This is likely due to the following reasons: first, the 'AND NOT' option was not used to specifically exclude editorials because choosing 'Newspapers' versus 'All sources' would similarly exclude columns and letters; and second, even if

the 'AND NOT' option had been applied, not all newspapers code their stories according to type thus resulting in the database's inability to filter unwanted news story types.

In total, eleven articles were excluded. Three were editorials and were excluded because the purpose of this research study is to evaluate the manner in which the print media portrayed the issues surrounding the federal government's investment in a national immunization program, not to ascertain the opinions or views of specific newspaper editorial boards. Another three articles were deemed irrelevant because these were opinions or letters written by individuals. A further four articles were excluded based on the criteria that they were columns, rather than news articles. Lastly, one news article was excluded because it was a short blurb that simply recounted U.S. statistics of HPV infection.

Chapter 3: Literature Review

For theoretical background, I also researched mass media and communication studies. I applied the conventional theoretical and analytical frameworks used in studying the media treatment of a particular issue. I referred to the *Canadian Journal of Communication*, to the book *Mass Communication and Public Health: Complexities and Conflicts* by Charles Atkin and Lawrence Wallack, and to other relevant Canadian books and journal articles.

To further inform my analysis of the print media treatment of the Gardasil controversy in Canada, I conducted a literature review of studies examining news media treatment of health issues. I reviewed Canadian research studies on media treatment of health issues. In choosing academic journals, I included peer-reviewed journal articles in both English and French from the pure sciences and the social sciences. I focused on articles that discussed the Canadian context; however, I did include studies from the United States if their findings could be extrapolated to the Canadian context. For example, an American study published in the 1 October 2008 issue of *JAMA* found that the news media often omit or include potential sources of bias in medical research, such as using brand names of study medications rather than the generic options (Hochman et al. 2008, 1544). Since the use of generic versus brand names is germane to my research on the Gardasil vaccine, I chose to include this study from the U.S.

I conducted two searches: of the EMBASE and Medline databases through EMBASE.com and of the Communication and Mass Media Complete database through EBSCOhost with the terms: *Canada AND health AND news media*. The search yielded 19 journal articles, 15 of which were deemed relevant, including three American studies. Four studies were deemed irrelevant for the present research because they did not specifically examine media treatment or representation of a health issue; one dealt with health technology and one with the cultural sensitivity of health information. However, the remaining two studies examined the social construction of health problems and were not considered directly pertinent to this study.

I chose to use the EMBASE and Medline databases because “EMBASE.com provides access to the most up-to-date citations and abstracts from biomedical and drug literature via EMBASE and Medline. It contains over 19 million indexed records from 7,000+ peer reviewed journals, covering 1947 to date, with more than 600,000 additions annually” (EMBASE). I also searched the Communication and Mass Media Complete database to contrast the heavily biomedical literature provided by EMBASE and Medline with an analytical approach to news media.

The fifteen media studies reviewed here represent a wide range of analytical and theoretical approaches. The majority used content analysis, either manifest or latent, to identify specific themes, topics or

characteristics in media reportage. One study conducted both a content and discourse analysis (Clarke 2005), while another applied Iyengar's four media effects in its content analysis of articles (Collins et al. 2006). Many also focused on the type of framing used in media stories. A few studies were quite specific in their methodologies; for example, one consisted of formal interviews with health reporters to determine the reportage of social determinants of health (Gasher et al. 2007). Another applied a natural history approach to examine the inception and mediation of obesity research (Roy, Faulkner & Finlay 2007). One study used the theories of the social amplification of risk model and the elaboration of likelihood model of persuasion to guide its content analysis (Berry, Wharf-Higgins & Naylor 2007).

The authors of the fifteen research studies each positioned their research within the broader discipline of media studies. What follows is a summary of the background information provided by the authors regarding the influence of the media on society, in general, and on health issues, specifically. This review of the perspectives and theories used by the research studies is necessary in order to situate them within the spectrum of theoretical approaches.

The news media are an important and influential part of the social environment (Caburnay et al. 2003). Clarke and Binns (2006) state that in modern mass societies, media are an essential component of life for individuals. Television, newspapers, radio, movies and magazines are

taken for granted as the background of daily life. The influence of the mass media on the public's perceptions of news events has been documented in many studies. However, the effects of news media on audiences are complex (Collins et al. 2006). It is often argued in mass media and communication studies that the media play a role in constructing our notion of reality due to their agenda-setting capability. Clarke and Binns (2006) believe that media both create and reflect social realities to such an extent that life experiences become mediated. Communications theory asserts that the media do not reflect or mirror reality, but represent and depict reality in particular ways through complex choices (Gasher et al. 2007). For all these reasons, an examination of how the print media chose to portray the government's investment in a new HPV vaccine is crucial in understanding how the Canadian public perceived these events.

In regards to health issues in particular, the mass media are influential in shaping discourses about health (Hayes et al. 2007). Berry and colleagues (2007) qualify the media's influence as having the power to choose which health issues reach the public. The news media have been described as significant sources of health-related information that shape the way health is thought about and discussed (Gasher et al. 2007). Applying a communications theory approach, reportage on health is seen as the product of decisions by reporters and editors (Gasher et al. 2007). Media are pivotal in creating and supporting the belief that health behaviour and medical systems are structured as they should be and for the

benefit of the people (Clarke & Binns 2006). Furthermore, it is argued that fundamental health policies about treatment, prevention, health promotion and research directions are related to media portrayal (Clarke & Binns 2006). Certainly, the federal government's decision to invest millions of dollars in a new national immunization program may have been susceptible to media depictions of HPV, cervical cancer and Gardasil, and to perceptions of public support for the proposed health policy.

The prominence of health in daily newspaper reporting seems to reflect the Canadian population's preoccupation with this issue. A recent poll found that 85% of Canadians chose health care as a government spending priority over any single other topic (Cobb 2002 cited in Gasher et al. 2007). The relationship between media portrayals and public perceptions is further influenced by the fact that the public gets most of its information about significant topics, such as genetic research, from the media (Bubela & Caulfield 2004). Likewise, Condit (2004) states that lay people get a substantial amount of information about health and health-related topics from the media. Similarly, Clarke and Binns (2006) write that media stories affect information about significant areas of life, such as health, illness and medicine. In the field of health communication, the media are the major source of information about drugs and their effects (Hathaway & Erickson 2004). Yet, it is problematic that these generalized statements are not accompanied by precise percentages or statistics to demonstrate rates of the public's dependence on media for health

information.

It is concerning that the media are often seen as operating in isolation. This perspective assumes that health messages in the media have direct effects on the public's attitudes and behaviours, rather than being one of the many forces affecting the public. Other mediating factors, such as personal beliefs, culture, and education level, must be taken into consideration when evaluating the influence of the media on individuals. The theory of representation asserts that media content is produced or constructed through a series of complex choices about how to depict a given topic (Gasher et al. 2007).

Past Research

The fifteen research studies included in my literature review also provide overviews of past research conducted in media studies on health issues. For instance, in regards to the primary focus of media studies, the majority of past research has addressed media representations of body images, particular diseases, the uptake of health care and coverage of pharmaceuticals (Hayes et al. 2007). Research has identified that public perceptions and preferences are altered based on the media framing of issues, especially war coverage (Blidook 2008). In terms of the reporting on genetics, the degrees and sources of inaccuracies have been investigated, as well as the general weaknesses of the media's coverage of

medical breakthroughs (Bubela & Caulfield 2004). Regarding the issue of obesity, a lack of research on media representations persists although there has been a significant increase in reporting on this health issue. For obesity, the main focus of past research has been the blaming of video-games (Roy, Faulkner & Finlay 2007). Research in the United States has shown that mentions of personal causes and solutions to obesity significantly outnumbered societal attributions of responsibility. However, mentions of social causes are increasing even though the prevalence of obesity has not been unequivocally established. Although there is no scientific certainty to support the claim of an “obesity epidemic,” this notion is present in the media, further neglecting the implications of the Western view of fatness as a moral failing and emphasizing the ability of the media to influence the social construction of issues.

Theories

Amongst the fifteen studies reviewed here, reference was made to specific approaches and theories from the discipline of media studies. The three approaches discussed are: media production studies, representation studies and reception studies. Four theories are mentioned: social constructivism, natural history, the social amplification of risk model, and the elaboration likelihood model (ELM); and five media effects are described.

The first approach, media production studies, seeks to deepen understanding of the commercial environment of media organizations (Seale 2003 cited in Collins et al. 2006, 92). Second, representation studies analyse media messages while lastly, reception studies focus on how audiences take up messages (Collins et al. 2006). Fourteen of the fifteen studies reviewed here belonged to the second category of a representational approach; thus, the remainder of the theories and effects discussed below relate to the analysis of media messages.

Generally, the four most commonly cited media effects are Iyengar's (1997): informing audiences, agenda-setting, framing and persuading. Regarding the first media effect, Collins and colleagues (2006) state that the news media are major sources of information about public policy issues. Although people assume that the media will inform them of current events, the accuracy of news reports is based on the quality of the presentations and the manner in which consumers decode the associated messages. It is noteworthy that the medical community is particularly sensitive to news quality threats, given the self-admitted limitations of journalists in reporting on science or health issues and the public's reliance on media for information on new advances in drugs, technologies, and therapies.

The second media effect, agenda-setting, refers to the media's ability to raise the salience of existing issues and the corresponding level of importance assigned to these issues by the public. The public agenda, or

the level of importance assigned to an issue, is usually proportional to the amount of attention paid by the media. There is a maximum level of importance the public will assign and a minimum threshold of coverage that is required for an issue to become part of the public agenda. A maximum threshold of coverage has been identified, after which increased coverage will not lead to higher levels of public concern. Furthermore, not all issues presented in the media have the same impact on public agenda-setting. Four attributes mediate the intensity of agenda-setting effects: if an issue is unobtrusive (i.e., affects a minority of the population); generates intense coverage over a short period of time; is concrete rather than abstract; and is dramatic, it likely will have stronger agenda-setting effects (Soroka 2002 cited in Collins et al. 2006, 91). Using these criteria, the Gardasil controversy would be expected to have a strong agenda-setting effect since it meets three of the four criteria: it generated intense coverage during August and September 2007; it is a concrete issue, i.e., a national vaccination program; and is dramatic, i.e., the first vaccine to protect against some strains of HPV.

Thirdly, the news media frame issues by subtly selecting certain aspects to make them more important and thus, to emphasize a particular cause of some phenomenon (Dearing & Rogers 1996 cited in Collins et al. 2006, 91). Framing is mediated by how issues are presented in the news. There are two types of framing: episodic, which promotes individualistic attributions of responsibility; and thematic, which promotes societal

attributions of responsibility. Whereas thematic framing challenges the status quo, episodic framing is described as being 'pro-establishment.' For instance, the results of the study by Collins and colleagues (2006) demonstrated that episodic framing has a greater potential to inform the public about health care reform and thus, for an agenda-setting effect.

Lastly, the news media have the ability to persuade the public about the issues they present. According to Iyengar, persuasion consists of three factors: the message, what is being represented; the source, which actors are represented in the media; and the audience, the 'persuadability' of media consumers (1997, 215 cited in Collins et al. 2006, 91). Although the media can be passive actors in policy processes, it has been argued that the news media serve the interests of powerful social elites. The results of the study by Collins and colleagues (2006) support the argument that the media act as conduits for policy agendas rather than as agenda-setters themselves. However, there is also evidence that the media act as filters for discussions of policy agendas in their focus on general rather than specific health care themes. This could be reflective of reporters' understanding of health care issues.

Within the field of media studies, two theories have recently emerged to address criticisms of representational analyses. To address the concern that most studies ignore the socially constructed nature of news messages, the social constructivist approach deconstructs the media processes, products and audiences to examine their power relationships

and contributions to constructing a media message that occurs at each level of inception, mediation and consumption (Alasuutari 1999 cited in Roy, Faulkner & Finlay 2007). This theory posits that the media construct versions of reality by selecting, combining and presenting events in the real world. Thus, health messages are considered to have the ability to shape our understandings of health and illness.

In order to consider the entire context of the development of news stories, the natural history theory sees media as emerging from a process that consists of various stages, which are direct and continuous, including inception, production and mediation (Finlay & Faulkner 2005; Finlay, Roy & Faulkner 2006 cited in Roy, Faulkner & Finlay 2007). Like the social constructivist theory, this approach moves away from representation studies to a broader understanding of the media. For example, the perspective of a manufacturing process iterates a similar view of news as composed of various stages involving reporters, editors and institutions (Gasher et al. 2007).

The social constructivist and natural history approaches can be combined to critically examine the nature of the relationship between health sources and journalists. For instance, Roy, Faulkner and Finlay (2007) researched how this relationship shapes the inception and mediation of obesity research and the translation of this research to the public. They focused on the meaning-making that occurs within the stages of creating news about health.

In order to understand the potential impact of health news reporting, Berry, Wharf-Higgins and Naylor (2007) argue that it is essential to first understand the construction of health messages in the news media before going on to examine the message-receiver interaction. Two theories commonly used to analyse the content of health messages in the news media are the social amplification of risk model and the elaboration likelihood model (ELM). In the social amplification of risk model, the impact of risk from the time of the event through the information flow, interpretation and response; and the spread and type of impact of the risk are examined. According to this theory, there is no direct personal experience of risk; rather, individuals access information through either the news media or personal networks. In this model, public response is influenced by the volume, dramatization and symbolic connotations of the information (Kasperson et al. 2000 cited in Berry, Wharf-Higgins & Naylor 2007). Thus, a large volume of information can amplify the perception of risk and distract individuals from other sources of risk. Even if news coverage is balanced and reassuring claims are made, the effects of risk or fear messages may not be countered.

In the ELM, the processes through which messages interact with individuals are the focal point of analysis. The source of a message and its grammatical elements are important variables in the degree of power the message will have. The perceived trustworthiness of a source will influence the strength of an argument and its subsequent persuasiveness.

Source credibility is determined by: expertise, competence and objectivity. Thus, experts are perceived as highly credible sources (Pornpitakpan 2004 cited in Berry, Wharf-Higgins & Naylor 2007). However, this may not always be the case as perceptions of people as experts are themselves influenced by outside factors. The literature on health messages in news media has also identified the characteristics of the language used in stories as impacting public perceptions. For example, powerless or powerful language can influence the credibility of the message. Moreover, stories that include a case study or human interest aspect are more likely to garner attention than those with only medical or scientific information.

More specifically, the media have a significant impact upon perceptions of health care (Blidook 2008). Recent research has shown that public opinion and public perceptions of policy issues play an important role in policy change. Moreover, specific issues, such as health care delivery, have the potential to shape electoral results. Blidook (2008) argues that a change in public opinion is usually accompanied with variance in media coverage of an issue. For example, perceived importance can be gained through the priming effect, which is the amount of attention that the media pay to an issue.

In contrast to priming, framing is related to the style of issue coverage. Media framing presents an issue in a specific way and leads to a particular interpretation of an issue, affecting what people think the problem is. Blidook contrasts priming and framing: “while priming has the

effect of placing an issue on the agenda, framing more particularly identifies the actual problem or reason for dealing with the issue” (2008, 357). Therefore, examining the priming and framing effects of the media on particular issues is important to understanding how the public learns about and perceives current issues.

Media impact on perceptions is greater when news coverage is directed at beliefs that are not deeply rooted or when the user is not highly experienced with analysing media messages. In these cases, beliefs and perceptions are more easily acted upon by media messages. This is important in regards to my research of the Gardasil controversy because the Canadian public was not well educated about the health issues surrounding the vaccine before a media campaign by the drug maker was launched. Also, the public had to rely on the media for information concerning Gardasil because there were no public health education campaigns from which to gain unbiased information. Public perceptions and beliefs about Gardasil, HPV and cervical cancer that were not deeply rooted would have been significantly shaped by the media priming and framing that occurred. However, it is important to note that the research conducted by Blidook (2008) demonstrates that firmly held beliefs and media savvy do not play a strong role in the overall media effect on health care. Rather, this effect reaches a saturation point with high users such that acceptance of the media message neither increases nor decreases (Blidook 2008, 368).

In my analysis of the media's representation of the Gardasil controversy, I will identify instances of Iyengar's four media effects and of priming. To determine the potential impact of media messages, I will apply the ELM's criteria regarding grammatical elements such as powerful language and expert sources. However, applying the social constructivist theory, the natural history theory and the social amplification of risk model is beyond the scope of the present study.

Themes

I was able to identify five themes from the fifteen news media research studies reviewed, including: priming of health issues, a focus on new drugs and expert sources, ability to influence the construction of issues, lack of broad context, and problematic reporting of science and health issues. I arrived at these themes by making a list of the commonly cited terms from the findings of each study and cross-referencing these to produce related themes. These themes clearly reflect the central points of the theories discussed above, such as the focus on expert sources in the ELM and the concern in the social constructivist theory that the media is capable of influencing the construction of issues.

1) Priming of Health Issues

The study by Blidook (2008) provides a clear example of priming of

a health issue by the news media. Past research had found that health care received more attention than any other issues during the 2000 election. The strong agenda-setting effects of health care can be explained by the fact that it is a concrete and unobtrusive issue, for which public reliance on media for information is high (Collins et al. 2006). Blidook suggests that priming of the health care issue occurred and that the media presented the issue in ways that indicated there was a problem with health care. In her analysis of the negative portrayals of political parties in television news coverage, Blidook (2008) found that in stories where the primary topic was health, parties were more often portrayed negatively. In fact, the governing Liberal party was 28% more likely to be portrayed negatively in health-related stories than in non-health related stories (Blidook 2008). This is an indication of significant priming of the issue of health care and suggests that the frame of health care coverage during the 2000 election portrayed the health care system as having a problem.

The research by Blidook (2008) found that mentions of the words 'health care' and 'crisis' together increased substantially from 1994 to 2000 in English-language daily newspapers. The majority of this increase occurred in the years 1999 and 2000. Coverage including both terms was 3.5 and 4.8 times greater in the last two years compared to the first year surveyed. Total health care coverage also increased over this time period; however, the proportion of negative coverage increased at a much greater rate. The high level of priming and the negative frame of health care

coverage in television news were also evident in newspaper coverage of the 2000 election. However, studies indicate that this perceived crisis is about public confidence rather than about deteriorating services (Maioni and Martin 2004 cited in Blidook 2008, 369). Therefore, it appears that the message of crisis is media-driven and popularly accepted. This demonstrates that the media are filtering information instead of acting as a conduit.

Regardless of the real or perceived changes within the health care system, it can be assumed that the mass media played some role in the public's perceptions of health care services. It can be concluded that an increase in media use will increase the likelihood of a negative perception of the quality of health care services (Blidook 2008). Thus, it seems that perceptions about the state of the health care system are significantly impacted by media, but are not divided along partisan lines. Among medium and high users of media, the longer term nature of media coverage tends to lead to the increased incidence of negative perceptions. These findings suggest that priming of new health-related issues, such as the proposed funding of a national HPV vaccination program, would likely occur similarly.

2) Focus on New Drugs and Expert Sources

Caburnay and colleagues (2003) point out that although health-related issues receive substantial media coverage, the focus is primarily on

new drugs, medical advances, high technology equipment and medical experts. This is supported by the findings of Berry, Wharf-Higgins and Naylor (2007) demonstrating that expert sources are cited more often than non-expert sources in news media. These findings are relevant to the Gardasil controversy in that primary emphasis was placed on the merits of the new HPV vaccine rather than less technological prevention methods, such as Pap smears. In their analysis of newspaper stories, Caburnay and colleagues (2003) found that even when stories did address disease causality, the perspective used perpetuated an ideology of blaming the victim. While no health behaviour or health education journals were used as sources for stories, four peer-reviewed scientific journals accounted for more than half of all references to a research source. Moreover, 51% of stories had a primary prevention focus, referring to the benefits of reducing disease incidence rather than shortening the duration of disease through early detection and treatment (secondary prevention) or reducing complications and reducing disability through rehabilitation (tertiary prevention).

The research of Berry, Wharf-Higgins and Naylor (2007) found that not only were expert sources cited more often than non-experts but they also used stronger language than non-expert sources. Hathaway and Erickson (2004) argue that by assuming an informed position on issues by citing authorities, or experts, the media draw attention to public health issues that may not be acknowledged by policymakers and may play a role

in developing policy by providing the 'facts' that inform key decisions. The research by Collins and colleagues (2006) supports the claim that the media act as facilitators for powerful interests. The combined effects of citing expert sources more often, who used strong language, and discussed risk more than prevention or treatment, may have persuaded individuals that they were at greater risk than was actually the case. "When fear is involved, people react en masse" (Gifford-Jones 2003 cited in Berry, Wharf-Higgins & Naylor 2007). When health messages are constructed in terms of risk, the result is a heightened risk perception among the public.

3) Ability to Influence the Construction of Issues

The media's ability to construct issues as either positive or negative is obvious from the study by Hathaway and Erickson (2004). They reviewed newspaper coverage of cocaine and tobacco in Canada. They found that currently the media tend to present opposing sides in that they both condemn and defend society's folk devils. The term 'folk devils' refers to groups of social types of deviant behaviour. Contradictory portrayals are apparent with tobacco. Past research has demonstrated that health stories may portray or reinforce negative stereotypes about users of both substances. Images of users may be positive, negative or neutral. Information about how to use and prepare drugs as well as the risks and pleasures of drugs may be presented. These messages have the potential to influence social norms about the appropriate use of substances.

The role of the media in constructing social problems has been well documented. For example, in the 1990s moral panics theory was used to explain the media's role in maintaining the status quo in drug control politics and other areas of social problems. It has been argued that this theory must be revised to take into account the media's expansion to the Internet and the fact that there are more participants in public policy debates. Even though almost half (48%) of the newspaper articles examined presented the health hazards of tobacco as a prominent theme, none of the opinion pieces argued in favour of increased tobacco controls. Hathaway and Erickson (2004) argue that there are inherent limits to political dialogue in news media and that the media contribute to the reproduction of the existing structure of knowledge-power-control relations in society.

Roy, Faulkner and Finlay (2007) argue that the way in which health research comes to the attention of and is processed by the media has not been addressed by media studies literature. Rather than focusing solely on the content of health messages in the media, an analysis of the inception, production and framing of media reports should be undertaken. Regarding the processes of constructing a news story, they found that sources and health organizations play important roles in the shaping processes of mediated communication. Gasher and colleagues (2007) identified scientific journals as a particularly important source of stories for newspaper health reporting. Reporters either use journal articles as the

basis of a story or as a means to generate ideas for related stories. Therefore, examining the science communication process can provide insight into the roles of sources and journalists in shaping news reports. For example, press releases shape stories for journalists due to the ready availability of information contained in these pre-prepared news items. Moreover, journalists and news sources are mutually reliant or constituting (Roy, Faulkner & Finlay 2007; Gasher et al. 2007). This type of analysis shifts the focus from the creation of meaning in the process of mediated health communication to ensuring that the public receives correct information. Moreover, the values present in health messages should be evaluated. Stryker (2002) provides support for this approach in her assertion that journalistic norms, values and practices affect how news is presented.

4) Lack of Broad Context

Also identified in the literature is a failure to situate specific health issues and health in general in a wider context. Hayes and colleagues (2007) found that newspapers overwhelmingly focused on health care, while completely ignoring social gradients in health and the social determinants of health. Although the broad influences of health, especially social determinants, have been given prominence in federal and provincial health policy documents in the last thirty years, Canadian social policy does not reflect a population health perspective. Their study revealed that

there is a significant difference between the health influences identified in policy statements and newspaper coverage of health stories. For instance, even stories about the social environment failed to discuss the issues of the welfare state in relation to health.

This failure to report on determinants of health may be partly explained by health reporters' lack of knowledge surrounding population health research. After conducting formal interviews with 12 health reporters from nine English-language and French-language newspapers, Gasher and colleagues concluded, "they are particularly unfamiliar with the social determinants of health" (2007, 570). The authors also found that there is far more news coverage of personal health habits, professional health services and genetics than of socio-economic factors, physical environment or early childhood development. Clarke (2005) found that media portrayals of childhood cancer focused on the individual child's character and thus, excluded other aspects of the disease, such as the epidemiology and possible environmental and genetic causes. Although the obsessive coverage of health care issues implies the notion that health care is the most important aspect to maintaining and improving human health, the role of health care as a part of the broader welfare state is ignored. Hayes and colleagues (2007) conclude that newspapers do little to advance the critical health literacy on health determinants. Furthermore, few studies have investigated news reporting on the various influences that affect the social gradients in health outcomes. Related to this, the social

determinants of health that can affect HPV infection and influence the possibility of developing cervical cancer were absent in the development of the Gardasil controversy.

Similarly, Hathaway and Erickson (2004) argue that the media contribute to the reproduction of hegemony through their role in the dissemination of the promotion of particular perspectives on health issues. Caburnay and colleagues (2003) state that there is a real need for research to be translated and disseminated to the general public. They suggest that this problem be addressed through a more organized and directed effort to promote research by journals and their publishers. The absence of longitudinal research on the Gardasil vaccine was ignored in news media coverage of the Gardasil controversy.

The continuing dominance of the medical model is apparent in the framing of health reporting. Collins and colleagues (2006) found that the more traditional health care sectors of physician and hospital care were present in newspaper coverage on the themes in the health care reform debate. Generally, newspaper reporting reflected the dominant institutional arrangements of financing and delivery in the Canadian health care system. For instance, Clarke (2005) found that the medical model prevails in magazine articles on childhood cancer. Thus, the public is not informed about possible alternatives.

In their research on the portrayal of heart disease in mass print magazines, Clarke and Binns (2006) found that the medical theme was

more frequently used than lifestyle or social-structural themes. Articles focused on medical methods of intervention on the body and on using medicine as a preventative measure. Moreover, latent themes included medicine portrayed as good and the body as bad; heart disease as an attack, as an individual responsibility and as embedded in contradictory information; and overall optimism about medicine. There was a clear gender bias in the presentation of male celebrity patients and doctors. The experiences of famous political men with heart disease were featured and the experts in the medical profession who were cited were all men. Interestingly, the heart ailments of celebrities were attributed to external forces rather than lifestyle choices, implying a contradictory favouritism for celebrities. In following with traditional medical discourse, the doctor was often framed as the expert who knows best.

Clarke and Binns (2006) argue that there is a lack of attention to the social-structural explanations for heart disease or the link between poverty and heart disease. For example, articles failed to consider issues of accessibility in their discussions of pharmaceuticals and surgeries. In the lifestyle frame, health and disease were individualized and lifestyle changes were displayed as easy to do. This model took for granted that individuals would have the resources, and would want, to make these changes. However, when basic needs are not being met, health may not be the top priority. Furthermore, the relationship between ethnicity and heart disease was not given consideration in the mass print magazines surveyed.

The implications of the social determinants of health were ignored even though the roles of social and economic conditions in health, disease and death from heart disease have been documented by extensive research (Raphael 2002, 2004 cited in Clarke & Binns 2006).

5) *Problematic Reporting of Science and Health Issues*

Also recurrent in the literature is the issue of news reporting on scientific research and particularly, pharmaceuticals. Although most newspapers articles accurately convey the results and claims of scientific articles, the majority do not mention the side effects or harms of new prescription drugs. There appears to be a concern about the lack of reporting of risk in association to drugs (Bubela & Caulfield 2004). In regards to Gardasil, the potential side effects were down-played or not mentioned until the publication of an Australian study (Brotherton et al. 2008) reported on side effect rates. This is particularly alarming considering that the print media are important vehicles for communicating information about health risks. The media are also the most economical means of relaying risk education; therefore, it has been suggested that the media bear some responsibility to relay information about key health risks (DeSilva, Muskavitch & Roche 2004). However, journalists may not always be the primary source of exaggerated claims. It has been argued that scientists and public health experts share the responsibility for informing the public about public health issues *with* journalists (DeSilva,

Muskavitch & Roche 2004).

Bubela and Caulfield (2004) argue that even a few stories with moderately or highly exaggerated claims can have a significant impact on public perceptions. In the field of genetics, it has been argued that media representations of genetic research are exaggerated or inaccurate, resulting in 'genohype.' This refers to the 'hyped' portrayal of both the benefits and risks associated with genetic research and the application of genetic technologies. It has been suggested that the public's ability to participate in policy discussions may be adversely impacted by genohype due to inflated perceptions of the value of specific genetic tests. In turn, this would impact on the utilization of genetic services. The research of Bubela and Caulfield (2004) indicates that most (77%) newspaper articles about genetics were not framed as a controversy and the majority (63%) had no exaggerated claims. Moreover, 82% of articles had no technical or scientific errors. However, the authors note that their data indicate a more subtle form of media hype related to what research newspapers choose to cover. It seems that behavioural genetics are receiving a disproportionate amount of media coverage.

In regards to the dissemination of health information, the media have the potential to play either a positive or negative role by promoting public health or sensationalizing health issues (Berry, Wharf-Higgins & Naylor 2007). Similar to the concept of genohype, the notion of 'health hype,' a term coined by Signorelli (1993) signifying health news that is of an

exaggerated and entertaining nature, is an example of this potentially negative role (cited in Berry, Wharf-Higgins & Naylor 2007). This results in discrepancies between actual causes of death and the amount of coverage given by the media. The effect of health hype can also be seen in the overestimation of some risks while others remain underestimated (Berry, Wharf-Higgins & Naylor 2007). For example, the health risks of cancer death are overestimated in the media while the risks from more controllable diseases, such as heart disease, are underestimated. Tobacco use and cardiovascular disease (CVD) are underrepresented in the media compared with their actual mortality rates.

The research of Berry, Wharf-Higgins and Naylor (2007) demonstrates the occurrence of health hype in the news reporting of sudden acute respiratory syndrome (SARS). They found that “the number of articles about SARS in 1 year was greater than for any other individual topic across all 5 years” (2007, 41). Additionally, SARS was described as ‘mysterious’ and ‘deadly.’ This fearful language corresponds to the results of a poll citing that 97% of Canadians reported being aware of SARS and 28% were worried that they or someone close to them would contract the disease (Legal Marketing 2003b cited in Berry, Wharf-Higgins & Naylor 2007). Furthermore, health topics were discussed in terms of risk three times more often than in terms of prevention. This is also supported by Hathaway and Erickson (2004) who found that journalistic accounts of both tobacco and cocaine focused solely on the risks of ingesting these

substances. The use of sensationalist language in the discussion of the Gardasil controversy similarly 'hyped' the occurrence of cervical cancer and the vaccine's 'life-saving' capabilities.

Cassels and colleagues (2003) focused on the presentation of drugs in Canadian newspapers. Their study was the first to examine the quality of pharmaceutical reporting by the Canadian media. Although there was a comparable study conducted in the United States (Moynihan et al. 2000), it did not examine drugs for both prevention and treatment. As cited earlier by Hathaway and Erickson (2004), people obtain much of their information about drugs from the media. Unfortunately, it is not only consumers that are influenced by the media coverage of new drugs. There is evidence that the prescribing practices of physicians may be impacted by the cumulative effects of media reports and educational materials that are provided to health care professionals. Hochman and colleagues (2008) assert that newspaper articles represent an important source of medical information for many patients and even for some physicians.

The findings of Cassels and colleagues (2003) demonstrate that newspapers do not report on the harmful effects of drugs. For instance, 68% of the newspaper articles they reviewed did not mention any potential harmful effects. However, benefits were mentioned five times more than harmful effects. Clarke and Binns (2006) also found that the benefits of the latest medications, such as cholesterol-lowering drugs and beta-blockers, were frequently emphasized. In fact, medicine was framed as triumphing

over 'evil' in the body. Cassels and colleagues found that contraindications were mentioned in 4% of articles and 19% of stories described only surrogate benefits. Similarly, Clarke and Binns (2006) found that there was little discussion of the failures or contraindications of the procedure called trans-myocardial revascularization. Clarke (2005) reported that there was no attention given to prevention or risk factors related to current medical treatments for childhood cancer in magazines. Medical treatments were accepted without question and at times, idealized in their ability to save lives. Moreover, the newspaper reports usually lacked quantitative information that would help readers determine if the drug would be helpful or the likelihood of adverse effects (Cassels et al. 2003). Only one-third of articles mentioned the costs of the drugs. This may be linked to the fact that reporters are 'oversolicited' by drug companies through numerous press releases and weekly invitations to press conferences (Gasher et al. 2007).

The findings of Hochman and colleagues (2008) indicate that media journalists frequently fail to indicate when medication studies received funding from pharmaceutical companies. Even when this information was included, it was seldom placed prominently in the text. As a result, people who learn about medical research from the news media may be unaware of how research is funded and may learn to refer to medications by brand names. In order for patients and physicians to evaluate new research findings, they must know whether commercial biases may have affected

the results. Hochman and colleagues (2008) recommend that journalists help their audiences to better interpret medical information by: presenting information in a commercially unbiased manner, using non-proprietary medication names and indicating how studies are funded.

Stryker (2002) found that issuing a press release generated more media coverage for medical journal articles. Certain medical issues are overrepresented in the news media because they conform to the normative necessities of journalism. Thus, journalists seek newsworthy medical research that has direct implications for the lifestyles of individuals and which will appeal to their readers. However, some medical journals also issue press releases for articles that have the characteristics that journalists are looking for. There is evidence that not only individuals, but also policymakers and funding agencies are affected by media coverage of medical research.

In terms of human interest aspects, articles included quotes from satisfied patients, researchers and clinicians that provided positive experiences or opinions of the drugs. Also, whether these people had financial links or competing interests with the drug manufacturer was omitted from newspaper reports (Cassels et al. 2003). Cassels and colleagues (2003) make recommendations for media reports about new drugs. Good reports should include information about: the drug's potential harms and benefits, the accurate identification of interviewees, the quality of the research behind claims, and contraindications, costs and

alternatives. Overall, the reader should have a balanced assessment of the drug's place within current clinical practice.

Debated Issues

According to the fifteen research studies there are unsettled issues within the discipline of media studies. One topic of controversy within media studies, which directly relates to the media portrayal of the Gardasil controversy, is the direction of impact between the public and the media. Studies have demonstrated unidirectional impact, in which the media alone affect public opinion, and a bi-directional link, in which public opinion affects what is covered in the media (Blidook 358). It is difficult to determine whether the origin of the framing of issues comes from public opinion that was formed before media influence or not. This debate is pertinent to the examination of the representation of health issues in mass media. In regards to the Gardasil controversy, the direction of impact between the public and the media is unclear. However, it can be hypothesized that the public had fewer opportunities to influence the framing of the issue since news coverage began once the mass immunization program was already in place.

Further Research

Nine of the studies suggest areas for future research. For example, Berry, Wharf-Higgins and Naylor (2007) argue that research must examine how health messages are constructed, rather than simply evaluating how much coverage is given to specific health issues. Future research should explore the relationship between news coverage of health topics and perceptions of risk, and the persuasiveness of media reports depicting the risk of cancer using human interest stories. Moreover, the characteristics of health messages in news media and the nature of individuals who consume these messages should be investigated, as well as the interaction with risk perception and the adoption of preventative health behaviours.

According to Bubela and Caulfield (2004), further investigation of exaggerated claims in the media coverage of genetic research is needed in order to identify possible causes. They suggest examining the possibility of selection bias in how stories are chosen and edited by top scientific journals. The possibility that the research community sells science to the public, to scientific and lay publications, and to research funders should also be explored. Similarly, Cassels and colleagues (2003) suggest that further research be conducted concerning how all sources of media report on drugs, including television, radio and the Internet, in order to gain a broader understanding of this issue. Stryker (2002) believes that variation in media coverage of medical journal articles should be investigated

according to the untested characteristics of newsworthiness versus the effects of issuing press releases. According to Collins and colleagues (2006), print media representation of health policy issues necessitates further research.

Hayes and colleagues (2007) believe that researchers, policy makers and public health advocates must work to change current reporting practices if the reduction of health inequalities is to be realized. Similarly, Gasher and colleagues (2007) argue that both the general public and health journalists must be better informed about population health research. A new communications strategy should be developed to better explain the interaction between the social determinants of health. Clarke and Binns (2006) recommend examining the effects of the lifestyle approach by assessing what readers choose to do or not do with the messages present in news articles.

Roy, Faulkner and Finlay (2007) advocate for further research into the rise of media advocacy in health organizations. Analysing the processes of inception that shape the media strategies of these health organizations and the process of knowledge translation that occurs would help to understand the media advocacy process. Audience perceptions of physical activity and health research should be investigated in order to understand the cycle of communication.

The literature on media portrayals of health issues is unanimous in highlighting the news media's influence in shaping and framing how the

public views specific topics, such as health care reform and health risks. A focus on the positive outcomes and benefits of medical interventions has the potential to give the public a false sense of security in regards to new technologies and pharmaceuticals. There is a lack of discussion concerning the broader social context, whose influence on health outcomes has been extensively documented.

Gender is also blatantly ignored in the media's treatment of health issues, even though the impact of this social determinant of health has been acknowledged through various government documents and initiatives advocating for gender-based analysis in all policy and program development processes (Health Canada 2003). Unfortunately, all fifteen studies that I reviewed remained silent on the issue of gender. However, my research specifically utilizes gender-based analysis in order to consider the dissimilar experiences of health that women and men face. My hope is to contribute to, and thus encourage, the growing scholarship on gender differences in health. Many of the themes and concerns identified by the authors of the research studies and which I have identified are applicable to the Gardasil controversy in Canada and will be used to inform my thesis research.

Chapter 4: Study Results and Analysis

Newspapers

Of the French and English language newspaper articles, the bulk were published during the year 2007, which is not surprising given that the federal government's decision to invest in a national HPV immunization program occurred in this year. For the English newspapers, the number of articles identified by the search parameters was distributed as follows: three articles in 2006; thirty-one in 2007; and seventeen in 2008, with a total of 51 articles (Table 4). The majority of the 2007 articles were published in the months of August (14) and September (5) (Table 5). This can be related to significant events, such as the publication of an article in the 1 August 2007 edition of *CMAJ* by Abby Lippman and colleagues critiquing the federal government's investment in a national HPV immunization program, and the subsequent announcements by the provinces of Ontario and Newfoundland Labrador on August 3, 2007 and August 7, 2007, respectively, to participate in the program (Table 2).

The majority of the 2008 articles occurred in the months of April (4) and September (4) (Table 5). This is likely due to the description by Québec's public health department of its mass immunization program for the 2008 school year on April 11, 2008 and to the publication of the study

by Brotherton and colleagues reporting on Gardasil's negative side effects in the 9 September 2008 *CMAJ* issue.

The majority of the French language newspaper articles appeared in the year 2007. The results of the search parameters were distributed as follows: two articles in 2006; eleven in 2007; and seven in 2008, with a total of 20 articles. However, this does not include the five articles that were found in *Le Journal de Montréal* through manual searches and cross-referencing. Including these, the number of articles becomes: four in 2006; twelve in 2007; and nine in 2008, with a total of 25 articles (Table 6). If looking at all French-language newspaper articles, the majority of the 2007 articles were published in the months of May (3) and September (4) (Table 7). This is likely due to the publication of two studies, which were supported by Merck, that confirm Gardasil's efficacy in the 10 May 2007 issue of *NEJM* and the announcement on September 24, 2007 by the Québec Ministry of Health to add Gardasil to the school immunization program (Table 2).

The database search parameters and manual searches yielded a combined total of 76 English- and French-language newspaper articles (Table 1).

Newsmagazines

The search of newsmagazines garnered a total of four articles: three

in *Maclean's* and one in *L'actualité* (Table 3). The three English language newsmagazine articles appeared on October 23, 2006; March 26, 2007; and August 27, 2007. The one French language newsmagazine article appeared on October 1, 2008. The publication of these articles cannot be directly linked to significant events in the Gardasil controversy; however, they do discuss the various issues surrounding the debate, such as depictions of Gardasil, promiscuity, cost, and the importance of Pap tests.

Data Analysis

To analyze the newspaper and newsmagazine articles, three readings were conducted. First, the articles were organized according to month and read in chronological order from oldest to most recent. This first reading allowed irrelevant articles to be identified and excluded, based on content or type of article, such as Opinion-Editorials. Notes were taken on key terms, events, organizations, and recurring views or ideas. Second, an examination of these notes was undertaken to identify prevalent themes in all of the articles. In order to validate the existence of a theme, cross-referencing was conducted between English- and French-language newspaper and newsmagazine articles. If a theme was apparent in both groupings of articles, it was concluded that it had been persistent throughout the articulation of the Gardasil controversy. The identified themes were then colour-coded and a third reading of the articles was

conducted.

This third reading focused on following the emergence and presentation of the specific themes during the twenty-nine months examined. It became apparent from re-reading the articles and cross-referencing with the notes on themes that sub-themes also existed. Therefore, each theme was further divided into sub-themes. Additional sub-themes were added as they emerged during the third reading. Although the same themes were identified in the newsmagazine articles as in the newspaper articles, numerous different issues were also raised within the newsmagazines. This necessitated a separate, further examination of the newsmagazine articles in order to assess and contextualize these new issues. In light of this, a fourth reading of all the newspaper articles was conducted to ensure that these new sub-themes and/or pertinent issues had not been overlooked.

During the data analysis, the literature review and the theories previously identified were used to inform my reading of the articles. My use of GBA meant that I looked for discussions of gender or references to the specificity of women and men. The analytical approach of political economy was applied in the search for references to the intersection of politics and economics. I remained alert to criticism and commentary about political decisions, policies and programs. Statements by government officials and politicians were especially scrutinized. I also looked for discussions of the economic background of the national

immunization program. In regards to the themes drawn from the literature review, these guided my analysis of the media's portrayal of the Gardasil controversy. I looked for mentions of expert sources and noted who was quoted in the articles, such as whether it was women or men, medical professionals, scientists, researchers, government officials, politicians, or citizens. I searched for discussions of the broader context of health, such as the social determinants that can influence health. The themes of the priming of health issues, the media's ability to influence the construction of issues, and the problematic reporting of science and health issues informed my reading of the articles in a more general sense. With these issues in my mind, I remained alert to the language and perspective used by journalists in their presentation of events and actors.

Themes in the Print Media's Portrayal of the Gardasil Controversy

Four broad and persistent themes emerged from a close reading of the articles: depictions of Gardasil; the importance of screening; sex; and cost. However, the articulation and development of these themes and their respective sub-themes occurred differently in English-language and French-language newspapers. Moreover, the manner in which they were framed varied, as well as the issues that were positioned as the primary components of the Gardasil controversy. Interestingly, certain issues and facts were present in French-language newspapers that were not apparent

in English-language ones. These differences may be attributed to differing socio-cultural values and political atmospheres. Therefore, it seems appropriate that the discussion of the themes be divided according to language in order to take into consideration the specific contexts of English Canada and Québec.

Newspapers

I. Depictions of Gardasil

The first and most important theme identified in both English-language and French-language newspaper articles is the manner in which Gardasil was depicted. This theme is made up of four sub-themes: first, Gardasil as a medical breakthrough; second, Gardasil as the first anti-cancer vaccine and as a tool to eradicate cervical cancer; third, Gardasil as being low-risk and safe; and fourth, Gardasil as life-saving. This theme is by far the principal component of the Gardasil controversy and not surprisingly, is the only theme that appears in both English-language and French-language newspapers.

a. English-language newspapers

First, Gardasil is described as a medical breakthrough and is hailed as the greatest advance or most significant development in women's reproductive health since the contraceptive pill. For instance, a 9 March

2007 article starts off this perception: “It has been hailed as one of the greatest advances in immunization in recent years...” and “almost universally hailed as a breakthrough preventative tool for one of the most common cancers among young women.”¹ Later, this portrayal is slightly altered in a statement by the Society of Obstetricians and Gynecologists of Canada (SOGC), in which Gardasil is linked to reproductive freedom for women. The SOGC’s associate executive vice-president “...called it the biggest breakthrough for women since the introduction of the birth control pill in the 1960s.”² Suddenly, the breakthrough aspect of Gardasil is related to gender and reproductive health rather than general medical science. This perspective debuts on 17 April 2007 and is repeated on 14 May 2007: “...it was hailed as the most important development in women’s reproductive health since the pill.”³ It is significant that this sub-theme becomes gendered since the mass immunization program is targeted solely at girls and women, and most importantly, that a triumphant attribute is ascribed to the vaccine: “...a victory for women’s health...”⁴

This perspective is resurrected on 7 August 2007 in contrast to the criticisms presented by the opponents of mass immunization. For instance, “It has been called ‘the medical breakthrough of the 21st century’ and the most significant development in women’s reproductive health since the Pill.”⁵ The article continues: “Hailed by some as a rare example of the government recognizing women’s reproductive health needs...”⁶ This sub-theme is then extended to vaccination in general: “Vaccinations were one

of the medical miracles of the 20th century.”⁷

Second, the HPV vaccine is dubbed a public health milestone due to its status as the first anti-cancer vaccine. This view of Gardasil focuses on its nature as a ‘first’: “It’s the first of a kind...”⁸ and “...this is the first vaccine that could have a major impact on the possible rates of cancer in our province.”⁹ Moreover, Gardasil is imbued with the characteristic of another first; it is the first vaccine to be so profoundly studied. For example, “...Merck and GlaxoSmithKline’s HPV vaccines are the most studied vaccines in the history of medicine, ‘with huge numbers of people being vaccinated and scrutinized like never before.’”¹⁰

This sub-theme is distinct from the depiction of Gardasil as a medical breakthrough because there is a specific focus on its ability to prevent cancer, and because this is an inaccurate assertion. The phrase ‘anti-cancer’ emerges rather early in the course of the controversy. On 2 February 2007 an article states, “As NACI admits (quietly), the anticancer effects of the drug have technically ‘not yet been demonstrated,’ even for the most promising 9-13 age group.”¹¹ Yet even though this evidence is lacking, the term ‘anti-cancer vaccine’ resurfaces on 14 May 2007: “It is billed as the first anti-cancer vaccine designed to prevent the vast majority of cervical cancer cases.”¹² Here, Gardasil’s characteristic as a ‘first’, or public health milestone, is directly linked to its potential to prevent cancer. In fact, later in the same article Gardasil is referred to as a “cancer-preventing vaccine...”¹³ Gardasil is also referred to as “the most expensive

childhood vaccine”¹⁴ and the most expensive one to be “proposed for mass use.”¹⁵ Thus, here Gardasil’s attribute as a public health milestone is linked to the fact that it is the first vaccine of its kind and to its record-setting cost rather than its immunological merits.

In relation to its characteristic as the first anti-cancer vaccine, Gardasil is identified as the solution for the eradication of cervical cancer. This viewpoint is presented in terms of prevention: “...with the potential to prevent a common form of cancer.”¹⁶ This idea is given further credence with a statement by the SOGC: “Dr. Vyta Senikas, associate executive vice-president of the Society of Obstetricians and Gynecologists of Canada, said the vaccine is crucial to preventing cervical cancer.”¹⁷ In September 2007, “the vaccine is touted as lowering the risk of a cancer that kills about 400 women a year in Canada.”¹⁸

The word ‘eradicate’ first appears on 2 August 2007, introducing the belief that Gardasil can eradicate cervical cancer. For example, “Gardasil has been marketed as the solution to almost eradicate cervical cancer.”¹⁹ This is an erroneous assumption since Gardasil provides protection against four of the 150 strains of HPV that have so far been identified, of which approximately 50 currently affect humans. It is noteworthy that the likelihood for eradication is qualified as ‘almost,’ demonstrating a certain amount of caution on the part of journalists. Another option presented is that, “the vaccine, teamed with intensified pap screening, could eradicate cervical cancer.”²⁰ Here, the importance of regular pap smears is

highlighted in relation to Gardasil's potential to achieve the eradication of cervical cancer. A parallel is made with chickenpox; hepatitis B; and smallpox, which is the only virus to be eradicated worldwide. For instance, "...some experts think that HPV, like the chicken pox virus, is best left alone."²¹ Later, it is commented that, "Only one infectious disease – smallpox – has ever been eliminated worldwide, and that was through near-universal vaccination carried out in a military-like operation."²² Here it is evident that the total elimination of cervical cancer is doubted, by virtue of the history of other immunization efforts.

There is also a discussion about the possibility or certainty of eliminating, eradicating or wiping out the human papillomavirus itself. This sub-theme of eradication next appears a year later in April 2008 when the results of a new study by two researchers from the University of Ottawa are published. It is claimed that, "The viruses that cause most cervical cancer could be wiped out with wider use of the controversial HPV vaccine..."²³ This could be accomplished "[w]ith wide, but not universal, immunization of the younger girls, and 20% of the older women inoculated, the strains of human papillomavirus that cause most cervical cancer cases could be eliminated..."²⁴ According to the researchers' mathematical formulas, "...the four targeted strains of HPV could be wiped out if 74% of schoolgirls and 20% of women aged 14 to 26 were inoculated."²⁵ Eradication is presented as attainable and relatively effortless; for instance, the lead researcher remarks in an interview that,

“Eradication could come reasonably easily...”²⁶ However, on the other hand it is noted that, “Eradicating those strains of HPV is, nonetheless, an ambitious notion.”²⁷ The task of eliminating the human papillomavirus is presented as a possible yet large-scale endeavour.

Third, Gardasil is referred to as highly or unusually effective, as cost-effective, as very low risk and as remarkably safe. This view of the vaccine is first presented on January 31, 2007. For example, “It [Gardasil] has been shown to be more than 95% effective.”²⁸ Further, “...it’s very effective for a specific type of cancer.”²⁹ Along with a focus on Gardasil’s efficacy, a factor of safety is stated; for example, “...the safety data for Gardasil ‘shows that it is unbelievably safe.’”³⁰ In September 2007, this sub-theme is given more press attention after the Canadian Paediatric Society officially endorses the vaccine. For instance, “It’s ‘a very safe, efficacious and exciting vaccine,’ said Dr. Lindy Samson, lead author of the pediatricians’ position paper on Gardasil...”³¹ This sub-theme continues in November 2007.^{32, 33} There is no mention of this sub-theme until April 2008 when a new study determines that, “...the product seems unusually effective.”³⁴

Then, this sub-theme regarding Gardasil’s safety comes under scrutiny in September 2008 when an Australian study³⁵ demonstrates higher than usual rates of anaphylaxis, which is defined as “a severe allergic reaction that can be life-threatening.”³⁶ At this point, Gardasil’s **life-saving** characteristic is transformed into a **life-threatening** potential.

Remarkably, print media attention continues to be focused on the safety of the vaccine: “But researchers caution that the risk remains very low...”³⁷ and moreover, “the new data show the vaccine is ‘remarkably safe.’”³⁸

Fourth, Gardasil is imbued with life-saving capabilities; it is a vaccine that will save lives. This sub-theme first appears on 10 August 2007: “Theoretically, with 100% vaccination compliance, Gardasil could prevent 273 of those [390] deaths.”³⁹ Its ability to prevent death is compared to other vaccines: “...the vaccine against human papillomavirus is probably more effective in preventing death from cervical cancer than the shots given to prevent deaths from chickenpox, meningococcal disease and influenza...”⁴⁰ Gardasil’s ability to save lives is measured in terms of the number of deaths prevented. For example, “...for every 729 adolescent girls vaccinated against HPV, one death could be prevented.”⁴¹ Additionally, “The HPV vaccine...has high efficacy against the types of infection that can cause a life-threatening disease...”⁴²

In the year 2008, this perspective continues: “Scientific discoveries, such as this one, make a true difference when they can save lives.”⁴³ Gardasil’s life-saving capacity is predicated on its complementary role with screening tests. For example, “With HPV vaccines and screening tests, we hope to prevent most cervical cancer deaths in the near future.”⁴⁴ One article uses a human interest story to highlight the role of the vaccine in saving lives: “ ‘My doctor told me it was extra protection, that she was giving the life-saving vaccine to her own daughter,’ said Manon Cantin,

whose three girls were vaccinated last year.”⁴⁵ This ability to save peoples’ lives is a powerful construct, made all the more commanding when personalized with individuals’ experiences as in the above example, and is an attractive, desirable premise. The idea of saving a life is commonly associated with positive, benevolent sentiments. It is difficult to refute the benefits of saving the lives of individual Canadian girls and women.

b. French-language newspapers

The theme of Gardasil depictions is reflected in the French-language newspapers as well. However, the articles refer to Gardasil as ‘the vaccine’ rather than using its pharmaceutical name Gardasil. This is striking in contrast to the English-language newspapers, which tend to use the name Gardasil rather than generic terms in articles.

In regards to the first sub-theme, Gardasil is not described as a medical breakthrough. There is one reference to the vaccine as a major advance: “These past few months, the vaccine, nevertheless considered as a major advance in the prevention of cervical cancer deaths, has found itself at the centre of crucial questions for the American nation.”⁴⁶ This quotation is more relevant to the fifth sub-theme of Gardasil’s life-saving properties. In addition, in July 2008 a reference is made that echoes the theme from English-language newspapers about Gardasil as an advance for women’s reproductive health: “For her [Dr. Diane Francoeur, president of the Association of Obstetricians and Gynecologists of Québec], the

vaccine represents progress for women's health that is comparable to the commercialization of the contraceptive pill."⁴⁷ The third sub-theme about Gardasil as the first anti-cancer vaccine and as a tool to eradicate cervical cancer is either rarely mentioned or completely absent. For example, "...but it is the first cancer against which we have a vaccine, so we must take advantage of it."⁴⁸ The phrase 'anti-HPV vaccine' only appears on 27 March 2008: "The anti-HPV vaccine has an efficacy of almost 100% in girls..."⁴⁹ These are the only instances of this Gardasil depiction.

The depiction of Gardasil as a tool to eradicate cervical cancer is not present in French-language newspapers. However, its preventative capabilities in regards to cancer deaths is mentioned. This first appears in May 2007: "Another attractive feature of the Gardasil vaccine: the vaccine could also prevent certain throat cancers..."⁵⁰ Furthermore, the eradication of HPV is mentioned: "...the government of Québec wants to eradicate HPV, a virus involved in close to 100% of cervical cancers."⁵¹

In terms of the third sub-theme, Gardasil is portrayed as highly efficient throughout the development of the Gardasil controversy in French-language newspapers. There is more focus on Gardasil's efficacy than on its safety or its being low-risk than in English-language newspapers. Beginning in May 2007, the efficacy of the vaccine is emphasized: "This clinical study has demonstrated that the vaccine is 98% efficient and is without danger."⁵² Then, "...this vaccine gives remarkable results..."⁵³ Despite this, its effectiveness is also questioned; for instance,

“...its efficacy is limited by the fact that all uterine cancers are not caused by papilloma viruses and that the vaccination must be done very early in young girls (as early as nine years old)...”⁵⁴ Additionally, Gardasil is “...judged to be ‘remarkably efficient...’”⁵⁵ This sub-theme continues throughout the year 2007, until December. Gardasil’s ‘remarkable effectiveness’ is linked to the limited protection it confers against other strains of HPV: “It is also 38% effective against 10 other types of HPV.”⁵⁶

In 2008, this perception of Gardasil persists. Its efficacy is discussed in relation to both girls and boys. For example, “The anti-HPV vaccine has an efficacy of almost 100% in girls, at the level of the strains of the virus which cause pre-cancerous lesions. In boys, the efficacy for genital warts is 90%.”⁵⁷ This is the first time that gendered differences in the use and efficacy of the vaccine are mentioned. Further, in early 2008 Gardasil’s level of effectiveness is related to its attribute as a safe vaccine. For instance, “ ‘Gardasil has a good level of efficiency and of safety...It does not have serious side effects.’”⁵⁸ Also, its merit is derived from its safety: “ ‘this vaccine is totally safe, must be administered for free to women, and this, beginning at pre-adolescence.’”⁵⁹ Lastly, “...the Gardasil vaccine is effective against HPV.”⁶⁰

The fourth sub-theme of Gardasil as life-saving is clearly apparent in French-language newspapers. This depiction debuts in May 2007: “The preventative vaccination of pre-adolescents against cervical cancer will permit numerous lives to be saved...”⁶¹ It next appears in April 2008:

“ ‘The vaccination program will permit lives to be saved, while 80 women die each year from this mutilating cancer...’⁶² Also, ‘The vaccine will allow 400 deaths to be avoided per year in Canada.’⁶³

A couple of new depictions of the vaccine arise in the French-language newspapers that do not occur in their English counterparts. First, Gardasil is referred to as having unanticipated qualities. For example, ‘It had hidden virtues: the Gardasil vaccine, which prevents cervical cancers, is more effective than what researchers had anticipated. It has, in effect, just been discovered that it has unknown properties against other types of HPV, against which it is not meant to act.’⁶⁴ This new-found protection is referred to as, ‘...a type of beneficial side effect, in sum’⁶⁵ and ‘...increases in the end the efficacy of the vaccine by 10% to 15%.’⁶⁶

Secondly, the fact that Gardasil is preventative rather than therapeutic is a focus in the French-language newspaper articles. For instance, the earliest article in the cohort states: ‘But the effects of this discovery will mostly be visible in the long-term. It is not, in fact, a treatment against cancer, but a preventative vaccine.’⁶⁷ Like the English-language articles, it is similarly mentioned that Gardasil is the most expensive vaccine in the history of vaccines, giving it the status of a ‘first.’ For instance, ‘...the Gardasil vaccine is the most expensive in the entire history of immunology.’⁶⁸ Yet, this is done in the context of factual information and not by a dissenting critic as in the English newspaper articles.

II. Importance of Screening

a. English-language newspapers

In the English-language newspapers, the theme of the importance of screening persisted from October 19, 2006 until November 26, 2007 and was regularly mentioned throughout this time period. This theme consists of two sub-themes: first, the importance of continued cervical cancer screening or continuing regular Pap tests after vaccination or despite being immunized; and second, the merits of regular Pap testing.

The first mention of this theme is articulated in terms of the first sub-theme: “And it [administering the HPV vaccine] doesn’t remove the need for continued screening for cervical cancer.”⁶⁹ This theme was put forth by the National Advisory Committee on Immunization (NACI) in its January 31, 2007 formal statement: “Even with the vaccine, until close to 100% coverage can be achieved for all HPV types, Pap screening ‘will remain critically important,’ the panel says.”⁷⁰ A direct link is made between the Gardasil vaccine’s limited protection against some HPV strains and the continued importance of regular Pap testing.

This relational link is clearly identified: “the vaccine, called G[u]ardasil, protects against the strains of HPV [that] are responsible for 70 per cent of cervical cancers, so pap smears, which are not 100-per-cent foolproof, are still necessary, even in those who are inoculated.”⁷¹

Similarly, in its announcement to offer the HPV vaccine the Health Department of Newfoundland and Labrador advised that, “since the vaccine does not prevent infection from all strains of HPV, ‘females will still need to get a pap test to detect early signs of cervical cancer that may be caused by the other types of HPV.’” In another article, the importance of maintaining sexual health is stated alongside the need for regular Pap testing: “...girls and women, even if vaccinated, will still need to practice safe sex and have access to existing reproductive and primary care programs – not only for Pap testing, but also for other aspects of their gynaecological health.”⁷²

The second sub-theme, the merits of regular Paps, debuts in the same April 17, 2007 article and is voiced by Abby Lippman, a professor of epidemiology at McGill University and chair of the Canadian Women’s Health Network (CWHN), who is later positioned in English-language newspapers as the main voice of dissent in the Gardasil controversy. Lippman argues, “This could divert much needed money from improving the pap test screening process, which is not being offered to all women efficiently.”⁷³ Later, the existent nature of Pap tests is highlighted in contrast to the need for a national HPV immunization program: “Women already have an effective method of prevention – regular Pap tests.”⁷⁴ The development of the Pap test and its success is celebrated, “...one of history’s most impressive and effective public-health efforts: the routinization of the Pap test for women.”⁷⁵ “The main reason for the

declines in both cervical cancer incidence and death is the Pap test, or Pap smear.”⁷⁶ The proven effectiveness of Pap testing is exulted in contrast to the potential benefits of Gardasil.

In the month of August 2007, the second sub-theme becomes more prominent with the publication of an article in *CMAJ* by Lippman and colleagues, which is referenced in a number of media articles.⁷⁷ The benefits of regular Pap smears are linked to the early detection and treatment of cervical cancer: “But invasive cervical cancer develops slowly and if caught early enough with regular Pap tests, it can be treated, said Ms. Lippman.”⁷⁸ Similarly, “regular PAP tests are effective in detecting cervical cancer in early, treatable stages.”⁷⁹ The importance of Pap tests is contextualised within the broader topic of sexual health: “...vaccinated women will still need to ensure that they practise safe sex and schedule regular Pap tests.”⁸⁰ Also, “...girls and women, even if vaccinated, will still need to practice safe sex and have access to existing reproductive and primary care programs – not only for Pap testing, but also for other aspects of their gynaecological health.”⁸¹ The merits of the Pap test are compared to that of Gardasil:

Pap smears...have the benefit of detecting pre-cancerous cells with causes other than HPV. These include other sexually transmitted diseases, none of which Gardasil prevents.⁸²

Furthermore, the ability of the Pap test to eliminate cervical cancer is used to argue against mass immunization: “If every woman got a Pap smear, we could virtually eliminate cervical cancer.”⁸³ In addition, it is

declared that, “A high degree of compliance with gynaecological examinations and Pap testing might prove as effective in preventing cervical cancer.”⁸⁴ Pap tests are presented as being under attack: “mass inoculation...could undermine existing, more comprehensive protections like Pap testing.”⁸⁵ Generally, this theme was vocalized by individuals who advocated for caution regarding mass immunization. Interestingly, a complementary relationship between the Gardasil vaccine and Pap testing is put forth in an April 17, 2007 article: “...better pap test for women to detect the virus and the HPV vaccine to prevent it go hand in hand.”⁸⁶ Within this theme, Gardasil is simultaneously positioned in opposition to and as a partner to regular Pap testing.

b. French-language newspapers

In French-language newspapers, the importance of screening was much more sparsely mentioned. The first mention is on December 4, 2006; next, it reappears almost a year later on September 23, 2007; then on December 7, 2007; and three more times in the year 2008: August 30th; October 28th; and November 18th.

This theme is first mentioned in terms of the first sub-theme, the importance of regular Pap smears and pelvic exams: “They [The Canadian Cancer Society] underline the importance of having regular Pap tests and pelvic exams.”⁸⁷ It is next stated in terms of the need to continue Pap tests despite being vaccinated. For instance, “Even young girls who will receive

a vaccine must obligatorily continue these [Pap] tests...”⁸⁸ The reason given for this is that ‘one-third of HPV strains escape the protection of the vaccine.’⁸⁹

The Comité sur l’immunisation du Québec (CIQ), the provincial counterpart of NACI, recommended developing a program to promote screening tests, such as Pap tests, which are essential.⁹⁰ The importance of Pap tests is again mentioned in the year 2008: “Women will therefore have to continue to get Pap tests.”⁹¹

The second sub-theme concerning the merits of Pap tests is presented in the year 2008: “The Pap test will continue to be the most efficient method of prevention against cervical cancer.”⁹² The last mention of this theme is in November 2008: “Screening remains, for him [Dr. Paul Brassard, professor in the Department of Medicine at McGill University], the cornerstone of prevention. ‘I’m speculating, but maybe one of the best ways to diminish the prevalence of cervical cancer in these regions [Nunavik] would be to improve screening in the 40 plus age group.’”⁹³

III. Sex

A third important theme involves the topic of sex. This theme consists of four sub-themes: first, the vaccine’s potential to encourage sexual activity; second, promiscuity and conservatives; third, abstinence as the best protection against disease; and fourth, the possibility of creating a false sense of security. However, this theme and its respective sub-themes

are virtually absent from French-language newspapers. When the above sub-themes are mentioned, it is in reference to the controversy occurring in the United States or in English Canada but not within the Québec context.

a. English-language newspapers

The first sub-theme debuts in a January 31, 2007 article, continues on February 2, 2007; March 9, 2007; May 14, 2007; August 8, 2007; September 25, 2007 and disappears for about a year until September 18, 2008. It is argued that “vaccines could lead young girls to become more sexually active.”⁹⁴ In addition, “The vaccine has also proven controversial among some who see it as promoting early sexual activity...”⁹⁵ The potential to encourage sexual activity in young girls is related to the protection conferred by HPV vaccination. “But the vaccine also prompted considerable controversy, with some school boards fearing it would promote sexual promiscuity among their students...”⁹⁶

Related to this, a belief that pre-marital sex is being encouraged by administering the Gardasil vaccine is expressed: “some conservative activists argue that such programs would effectively condone pre-marital sex.”⁹⁷ Promoting sex among youth is seen as a negative consequence of immunization; for example, “Some parent groups worry the vaccine sends the wrong message...”⁹⁸ Engaging in sexual intercourse at a young age is seen as a dangerous activity that should be avoided: “while no one wants children having sex too young, the reality is that about 20% have had

intercourse by Grade 9...⁹⁹ The solution to avoid this reality is by providing sex education: "...children should be given Gardasil along with age-appropriate sex education."¹⁰⁰

The second sub-theme concerning promiscuity debuts in the same February 2, 2007 article alongside the first sub-theme. It continues on February 17, 2007, but disappears until late 2008, on November 14th. This sub-theme clearly associates conservatives and conservative values with a belief that HPV immunization will lead to promiscuity among young girls and women. For example, "some conservative parents and activists have argued that the vaccine will create more problems than it solves...they are reluctant to prevent it at the cost of possibly making sex more attractive to their daughters."¹⁰¹ Similarly, "the idea that the vaccine might promote promiscuity among teenagers"¹⁰² is expressed. The group of people labelled as 'conservatives' is not always clearly described in the articles. For instance, the term 'conservatives' is used to refer to religious groups, such as the Ontario Catholic School Boards and/or the Ontario Conference of Catholic Bishops, rather than members of the Conservative Party of Canada. However, people who are not necessarily identified as conservative or religious also express concern about promiscuity. For example, "Some parent groups worry the vaccine sends the wrong message and may encourage preteen girls to engage in sex."¹⁰³ No such link is made between promiscuity and young boys and men. Gender-based analysis is completely lacking in the references to sexual activity even

though it takes two individuals to engage in sexual intercourse.

The third sub-theme regarding abstinence does not appear until late 2007: September 21, 2007; September 25, 2007; June 5, 2008; and September 18, 2008. The Ontario Catholic School Boards are the main actors and supporters of this sub-theme. This belief is first articulated by the Ontario Conference of Catholic Bishops: “A better way to prevent the spread of the virus, the bishops say, is not having sex, and that the vaccine ‘may have other unintended and unwanted consequences.’”¹⁰⁴ The bishops sent a letter to the parents of Grade 8 girls, saying “Outside of marriage, abstinence is not only clearly the choice that leads to spiritual and moral well-being, but it is obviously the best protection against risks of disease.”¹⁰⁵ However, the existence of sexual assault and gender-based violence is not given consideration in this promotion of abstinence. Abstinence is positioned as the best protection against HPV specifically and also against sexually transmitted infections (STIs) generally: “the Ontario Conference of Catholic Bishops said abstinence is the best protection against sexually transmitted disease.”¹⁰⁶ The importance of abstinence within the Catholic faith was presented as the reasoning for voting against HPV vaccination in schools. For example, “Abstinence before marriage is an essential facet of the Catholic faith, and the trustees also voted to get the board to increase its efforts to remind their students of that.”¹⁰⁷

Specifically, the Halton Region Catholic School Board voted on June

4, 2008 against allowing provincial public health nurses to enter schools to administer the Gardasil vaccine. The reasoning behind this decision is based on the belief that abstinence is the best solution. A board trustee who pushed for the ban is quoted as explaining: “We’re teaching abstinence, and on the other hand we’re saying, ‘Here’s protection, just in case.’ It’s kind of a contradiction.”¹⁰⁸ This June 4, 2008 decision to overturn the previous vote to support Ontario’s endorsement of the HPV immunization program was publicly criticized by Premier Dalton McGuinty as ‘a mistake.’ Religious reasons and a concern about sending the wrong message to adolescents regarding sexual activity were cited as the rationale for opposing HPV immunization.

Fourth, a sub-theme regarding the possibility of giving young girls and women a false sense of security exists. The concern is that being vaccinated with Gardasil might lend a sense of security against all or other STIs if proper education is not available. This issue is identified by Lippman and colleagues’ August 1, 2007 article in *CMAJ* and thereafter reported in the newspapers. For instance, “The vaccine may also create a false sense of security, says Ms. Lippman, who fears that women [who] have been vaccinated will be less vigilant about safe sex and regular Pap tests.”¹⁰⁹ This sub-theme is repeated the next day in *The Gazette*: “The paper also suggested that the vaccine may create a false sense of security and pointed out that vaccinated women will still need to ensure they practise safe sex and schedule regular Pap tests.”¹¹⁰

A false sense of security is further discussed in terms of general sexual health and specific STIs. For example, “But her [Madeline Boscoe of CWHN] biggest concern is the complacency that widespread vaccination might engender among girls and women about their sexual health.”¹¹¹ In addition, “...some critics believe mass promotion could lead some women to believe they’re protected against other sexually transmitted infections, like the potentially deadly HIV.”¹¹²

b. French-language newspapers

The first time that the general theme of sex appears it is in reference to U.S. events. For example, “[vaccination] raises questions that are particularly sensitive in the United States: youth sexuality, parental authority, the power of the state, doubts about the effects and suspicion in regards to pharmaceutical groups.”¹¹³ The article goes on to mention the second sub-theme of promiscuity and conservatives. Conservatism and religious conservative groups in the U.S. refuse to let the government impose a vaccine against something that is sexually transmitted.

The first sub-theme about encouraging sex amongst youth is mentioned twice, once in the year 2007 and once in the year 2008. However, these references are again about English Canada, and not Québec: “Elsewhere in English Canada, the vaccine against HPV provoked the ire of certain groups and religious school boards who feared that this could encourage adolescents to have premature sexual

relations.”¹¹⁴ Interestingly, the situation in Québec is contrasted to this: “In Québec, this position seems to have been avoided.”¹¹⁵ The other reference to the first sub-theme is: “Some right-wing groups have affirmed that it could encourage hasty sexual promiscuity...”¹¹⁶ Once again, the situation in the United States and English Canada is used to contrast the upcoming reaction in Québec: “The [Québec] public health authorities hope to avoid the controversy that welcomed the anti-HPV vaccine in certain American states and in Ontario.”¹¹⁷

Abstinence, the third sub-theme, is never mentioned at all.

The fourth sub-theme regarding the possibility of creating a false sense of security is apparent in two articles. The concern “Will young girls not think themselves, incorrectly, invincible?”¹¹⁸ is repeated in August 2008: “...they [the Gardasil and Cervarix vaccines] risk giving a false security” and “Now, they [women] may feel completely protected and stop these [Pap] tests.”¹¹⁹

IV. Cost

Cost is another salient theme in the newspaper articles that were reviewed. This theme consists of four sub-themes: first, the question of who will pay for the vaccine; second, cost as a barrier to obtaining the vaccine; third, the vaccine’s cost-effectiveness; and fourth, a lack of cost-effectiveness analysis. The sub-themes of the cost theme are more condensed in terms of their time-line in the Gardasil controversy and

overlap more than the other three themes.

a. English-language newspapers

Within the English-language articles, the theme of cost is mentioned in articles on: October 19, 2006; February 2, 2007; February 17, 2007; February 20, 2007; April 16, 2007; August 2, 2007; and September 25, 2007.

The first sub-theme debuts at the very beginning of the Gardasil controversy, on 19 October 2006. At this point, no government funding at any level had been allocated. Therefore, physicians in some provinces were lobbying their governments to cover the costs of the three doses of Gardasil. For example, “Doctors are asking the [B.C.] province to pay for a new vaccine to protect girls from genital warts and cervical cancer, which kills 400 Canadian women each year.”¹²⁰ The concern about funding next appears in February 2007: “At the moment, no province yet pays for Gardasil...but that is likely to change quickly as politicians see a chance to score points with parents.”¹²¹ The question of who will pay focuses on the fact that none of the provinces had volunteered funding. For instance, “But, so far, no province has agreed to pay for it”¹²² and also, “...but no provincial government has yet chosen to fund the new human papillomavirus (HPV) vaccine.”¹²³

In March 2007, the focus switches to the federal government: “Some said they were...hoping the federal government would offer up

funding.”¹²⁴ However, the federal government responds vaguely to this anticipation: “Erik Waddell, a spokesman for Tony Clement, the federal health minister, said everyone will have to ‘wait and see’ whether there is funding for the HPV vaccine in the budget March 19.”¹²⁵ The federal government’s subsequent decision to invest in a national HPV immunization program is framed as inadequate: “Ottawa has pledged \$300 million for HPV vaccine funding...But the National Advisory Committee on Immunization’s recommendation... ‘would mean vaccinating over five million females, at a cost of \$2 billion for the vaccine alone.’”¹²⁶ This issue garners much media attention in August 2007: “Meanwhile, the \$300 million in federal money is only a small part of what it would cost to vaccinate all of Canada’s eligible girls and women. That figure is estimated at between \$2 and \$3 billion...”¹²⁷ Similarly, “The federal government has allocated \$300 million to vaccinate girls ages nine to 13, but broad inoculation is estimated to cost much more, ... a single round to be about \$2-billion.”¹²⁸ This concern persists into September 2007: “The cost of administering the vaccine is estimated at about \$600 per patient, meaning the money is far from enough to vaccinate the entire female population.”¹²⁹

Once federal investment is available, the question of how to use the money is presented. For instance, “[b]ut it could be the end of the year before each province decides whether to use the money to make vaccination free.”¹³⁰ In addition, “[w]hether this will mean subsidized or

free vaccines is up to each province.”¹³¹

The second sub-theme is closely linked to the first one in that a claim about cost as a barrier is made in advocating for government funding of the vaccine. In fact, the first mention of this sub-theme is in relation to lobbying the B.C. government. For example, a Victoria pediatrician and infectious disease specialist stated that, “My greatest fear is that those who can afford the vaccine will get it and those who are at greatest risk will not get it.”¹³² The steep cost of Gardasil is highlighted in order to make a claim for funding: “The vaccine is available through doctors’ offices, but its hefty pricetag – about \$500 for the three required doses – has meant limited interest in the vaccine.”¹³³ The issue of financial accessibility is raised: “At \$400 per patient, the cost is likely out of reach for many Canadian families, say advocates.”¹³⁴ Moreover, “It’s very expensive, so it’s difficult for anyone to buy this on their own.”¹³⁵ The inordinate cost of the vaccine is contrasted with Gardasil’s merit as a vaccine: “It looks like a very good vaccine...(But) it’s quite expensive.”¹³⁶ It is significant that the decision to invest in a national immunization program is framed in terms of accessibility. During the 19 March 2007 budget announcement, Mr. Flaherty affirms that, “This is an expensive vaccine and ... the whole purpose is to make it available to people across Canada, women and girls across Canada, regardless of their ability to pay.”¹³⁷

Varying estimates of the cost of Gardasil continue to be present in newspaper articles: “Given in three shots over six months, Gardasil costs

about \$405.”¹³⁸ Additionally, “...the cost of the vaccine – between \$400 and \$600 per patient – is ‘exorbitant.’”¹³⁹ Likewise, “The cost of the vaccine is estimated at up to \$600 per patient.”¹⁴⁰ For patients who are not eligible for the nationally funded immunization program, the burden of this ‘exorbitant’ cost must be shouldered individually: “Girls and women who want the vaccine but are older will have to pay to buy the vaccine from a pharmacy and have the immunization at a doctor’s office, a process that costs about \$600.”¹⁴¹ The price of Gardasil fluctuates: “Those not included in the government program...can, with a prescription, get the vaccine from a pharmacist and have their physician administer it at a cost of \$450 for the full three doses.”¹⁴² The cost for Gardasil increases at private clinics: “Another option is to get vaccinated at a private health clinic, which costs \$500 to \$600 for all three doses.”¹⁴³ However, this brings to bear a concern as to why pharmacists and physicians would vaccinate girls and women who are not eligible for Gardasil according to NACI’s recommendation.

The third sub-theme, the question of Gardasil’s cost-effectiveness, appears at the start of the Gardasil controversy. For example, “Some issues to consider are...whether two doses would work as well as three and be more cost effective.”¹⁴⁴ The following instance of this sub-theme is fairly sceptical: “Given the vaccine’s price, and the lingering possibility of unforeseen adverse events, can we be certain the drug will still be cost-effective if women have to go back for another time-consuming round of

jabs every five years?”¹⁴⁵

Once federal funding for a national HPV immunization program is announced, the focus shifts to questions of cost-effectiveness and duration of immunity. For instance, “But in the rush to inoculate, critics say, important questions have been ignored, such as how effective is the vaccine in the youngest girls and how long will immunity last?”¹⁴⁶ A cost-effectiveness estimate is presented: “...introducing the vaccine in B.C. would save \$54 million at a cost of about \$373.6 million assuming a cost of \$330 for the vaccine and \$100 for a booster.”¹⁴⁷

The fourth sub-theme appears in August 2007 with the publication of the 28 August 2007 *CMAJ* issue. The criticism is, “Yet, the cost-effectiveness analysis of proposed vaccination programs needed to evaluate this expense are missing.”¹⁴⁸

b. French-language newspapers

Unlike English-language newspapers, the theme of cost is not a major issue in French-language newspapers, occurring a total of ten times during the time period analyzed. The first sub-theme of who will pay is framed in terms of the provinces’ jurisdictional authority. The first instance is in March 2007 and refers to a concern that is not included in the four identified sub-themes. “The decision to include this vaccine in the free vaccination program always comes back to each of the provinces.”¹⁴⁹ Next, the theme of who will pay for Gardasil is mentioned in regards to the

inadequacy of the federal funding: "...the funds promised by Stephen Harper will not suffice to immunize all Québécoises ages 9 to 26 if ever Québec decides to go ahead."¹⁵⁰ Further, criticism is targeted at Québec's share of the federal money: "Québec's share was, in effect, set Monday at 75 million, which is well under the 350 million necessary to vaccinate all of the first cohort."¹⁵¹

The second sub-theme refers to cost as a barrier to accessing the vaccine. "Its cost: close to \$400 for the three doses."¹⁵² "...it is always possible to get vaccinated by your own means. The vaccine comes in three doses, with a total cost of almost \$600."¹⁵³ Further, "...the very high costs of the vaccines in relation to the advantages that they provide."¹⁵⁴ There is overwhelming attention given to the various costs of the program, including the start-up cost of the first year, the annual cost of the following years and the portion of federal funds allocated to the province. For example: "...this vaccination program, which will cost 50 million dollars in its first year..."¹⁵⁵; "The vaccination campaign will cost \$50 million, \$40 million of which will be used to purchase the vaccines"¹⁵⁶; "Spread out over three years, the cost of the campaign will be \$70 million and at its end, new agreements will have to be established to maintain it as free."¹⁵⁷ Also, "The vaccination campaign against HPV will cost the Québec taxpayers \$50 million for the year 2008-2009"¹⁵⁸; and "Its [RQASF] president, nurse Claire Dubé, points out that it will cost \$50 million dollars to protect young girls against this virus that can lead to provoking cervical

cancer.”¹⁵⁹ “If immunity disappears after ten years (and if it is necessary to give a booster), the cost of vaccinating pre-adolescent girls will exceed \$140,00 per year of life saved.”¹⁶⁰ “Nevertheless, since the official announcement, in April, numerous groups are questioning its [the vaccine’s] exorbitant cost.”¹⁶¹

The third sub-theme regarding the vaccine’s cost-effectiveness is first mentioned in September 2007 regarding the costs of the immunization program: “...to justify the large costs of starting up the program.”¹⁶² Choosing to vaccinate girls at the young age of nine is justified in terms of cost-effectiveness: “...proceeding at the fourth grade will allow to attain very high levels of protection, at a modest administrative cost.”¹⁶³ “He [Dr. Alain Poirier, General Director of the Direction de la santé publique] estimates that on the cost-effectiveness plan, this vaccine will allow savings to be made since it will diminish the financial burden represented by not only the treatment of women with cervical cancer, but especially the medical exams, the negative screening tests, and other treatments linked to HPV.”¹⁶⁴ Interestingly, the cost-effectiveness of vaccinating boys is discussed at length in the year 2008, whereas it is not mentioned at all in the English-language newspapers. For instance, “But in the end, it [government-financed vaccination of boys] would cost much more per year of life saved.”¹⁶⁵

The fourth sub-theme about a lack of cost-effectiveness analysis is much more prominent in the French-language articles. Starting in July

2008, the decision to invest millions of dollars is criticized: “But from an epidemiological point of view, these are very weak numbers which do not justify a major and urgent investment...”¹⁶⁶ It is argued that such an extreme investment is unwarranted: “...the cost-effectiveness studies remain weak and insufficient to justify such an expense.”¹⁶⁷ The lack of appropriate effectiveness data is again mentioned in August 2008: “Despite big expectations and promising results from clinical studies, we still lack sufficient evidence in regards to the effectiveness of the vaccines against cervical cancer.”¹⁶⁸

Newsmagazines

In both the English-language and French-language newsmagazine articles, all four of the major themes were represented. For this reason, they are discussed as a group rather than according to language. Nonetheless, it is important to note the uneven dispersal of the articles. For example, the only article in 2006 was published in *Macleans* just as the only article in 2008 was in *L'actualité*. The other two articles are both in 2007 and both in the English-language newsmagazine, *Macleans*.

I. Depictions of Gardasil

The first sub-theme of Gardasil as a medical breakthrough is apparent throughout the newsmagazine articles. For example, in one article

there are two mentions of this portrayal: first, "...a breakthrough vaccine approved by Health Canada in July delivers unprecedented hope"; and then, " 'The fact that we have a vaccine against HPV types that cause cervical cancer is a medical breakthrough...'”¹⁶⁹ This theme is also mentioned on 26 March 2007: "...calling Gardasil 'the biggest health breakthrough for women in many years.'”¹⁷⁰ In 2008, "...Gardasil is a major advance for women's health.”¹⁷¹

The second sub-theme regarding Gardasil as the first anti-cancer vaccine is not readily apparent in any of the newsmagazine articles. However, a close approximation is expressed: " 'That's such a phenomenal thing for us to be able to stop a cancerous disease before it even begins...'”¹⁷² A reference is made to the depiction of Gardasil as a tool to eradicate cervical cancer. For example, "The HPV vaccine has been sold by Merck and its proponents as a tool for ending cervical cancer.”¹⁷³

The third sub-theme about Gardasil as highly effective is mentioned in the French-language newsmagazine article. For instance, "The effectiveness of Gardasil, made by the American giant Merck, is little contested.”¹⁷⁴ Related to this depiction, Gardasil is presented as a worthwhile investment: "...this vaccine is one of the most profitable and an excellent investment in public health.”¹⁷⁵ This affirmative depiction is followed by a presentation of Gardasil as only positive: " There's no downside to giving the vaccine.”¹⁷⁶

The fourth sub-theme of Gardasil as life-saving is absent.

Like the English-language newspaper articles, a comparison is made between Gardasil and other vaccines: “ ‘It’s like the vaccine against hepatitis B, which we’ve been giving for years.’”¹⁷⁷ However, there are two distinct differences: first, this is not from an English-language article but rather from *L’actualité*; and second, the comparison is not in reference to the eradication of a disease but rather to normalize the administration of a vaccine for a sexually transmitted infection to schoolchildren.

Similar to the French-language newspapers, *Maclean’s* makes reference to the fact that Gardasil is preventative: “...the vaccine-which is only preventive...”¹⁷⁸

A few new themes are presented on 27 August 2007: “Despite these promising outcomes, cervical cancer is being turned into a new millennium polio...”¹⁷⁹ and “Gardasil is supported by the most energetic lobbying campaign of the history of vaccines.”¹⁸⁰ These are new interesting topics that warrant more investigation, however given that neither of these ideas is repeated in any of the other articles that were reviewed, they cannot be described as themes.

II. Importance of Screening

This theme occurs in *Maclean’s* (27 August 2007) and *L’actualité* (1 October 2008).

The first sub-theme regarding the importance of continued cervical cancer screening is mentioned: “...these [vaccinated] women should still

expect to take part in the currently recommended cervical cancer screening programs.”¹⁸¹ Then, the importance of continuing regular Paps after or despite immunization is stated: “Even if vaccinated, women have to continue getting smears to detect any anomaly.”¹⁸²

The second sub-theme concerning the merits of regular Pap smears is discussed in terms of prevention and as a supplement to Gardasil. For example, “...some say current screening methods- Pap smears- are effective and safe ways of preventing the disease.”¹⁸³ The value of Pap testing is secondary to the Gardasil vaccine: “Paps will be a critical complement to Gardasil, insists the immunization advisory committee.”¹⁸⁴

III. Sex

The first sub-theme about the vaccine’s potential to encourage sexual activity is not explicitly stated, although the quotations below echo this concern framed in terms of promiscuity.

The second sub-theme of promiscuity and conservatives appears in two of the three *Maclean’s* articles. However, all of these reference the experiences of other countries as examples for Canada. First, the reactions in the United States and the United Kingdom are mentioned:

“Conservative groups in the U.S. and the U.K. have argued that the HPV shot may encourage young girls to become promiscuous.”¹⁸⁵ Additionally, “In Texas and New Mexico, attempts to introduce laws to make the vaccine mandatory for sixth-grade girls led conservative groups to claim

promiscuity would rise.”¹⁸⁶

The third sub-theme of abstinence is similarly mentioned in regards to the American and British situations: “They [conservative groups in the U.S. and the U.K.] stress that abstinence is the best protection against sexually transmitted infections.”¹⁸⁷

The fourth sub-theme about creating a false sense of security appears on 27 August 2007. “So there is significant danger in people feeling this vaccine offers them a force field protection.”¹⁸⁸ Similarly in *L'actualité* it is argued: “We fear that the vaccine will give a false sense of security to young girls.”¹⁸⁹ There is also a general concern about introducing young girls to issues of sexual health: “...in response to groups who fear that little girls will be familiarized too early with the reality of STIs.”¹⁹⁰

A new theme regarding sex is presented in the newsmagazine articles. First, on 23 October 2006 it is contended that administering Gardasil to young girls has the added benefit of providing a chance for adults and children to broach the topic of sex. For example, “But it is an opportunity to discuss options and give them [Dr. Donald Davis, president of the Society of Obstetricians and Gynaecologists of Canada] the information that they [youth] need to continue with a safe and healthy sex life in the future.”¹⁹¹ In August 2007, this idea is put forward again: “Her [Dr. Sharon Moalem, a neurogeneticist and evolutionary biologist at New York’s Mount Sinai School of Medicine] strong recommendation is for parents to talk to their children about HPV as a sexually transmitted virus,

and its link to cervical cancer, among other illnesses.”¹⁹² These are the only instances that mention talking about sex with children and parental responsibility to provide sexual health information to their children.

IV. Cost

The theme of cost is mentioned five times in the newsmagazine articles: four times in the English-language newsmagazine of *Macleans* and once in *L'actualité*. However, the third and fourth sub-themes regarding the vaccine's cost-effectiveness and a lack of cost-effectiveness analysis are absent. The first sub-theme of who will pay is mentioned in October of 2006 in regards to the provincial and territorial governments. The second sub-theme of cost as a barrier is also discussed in terms of the expensive price of the vaccine.

Language

Certain words are used throughout the presentation of the events regarding the proposed national HPV immunization program, which lend a distinct ambiance to these issues. For instance, both the words ‘critique(s)’ and ‘controversy’ first appear in an early February 2007 article. Later on, in May 2007 critique and controversy transform into a debate, in which distinct sides are defined. The supporters of the HPV vaccine, such as SOGC, NACI, AOGQ, and MP Dalton McGuinty, are depicted as having the best interests of Canadian girls and women at heart. They are polarized

against women's health groups, feminist advocates, some public health officials and some scientists, such as Dr. Abby Lippman, FMWC, and RQASF, who are portrayed as dissenting critics with a cautious approach and a somewhat suspicious opinion of the national immunization program. The mention of critics and/or critiques are reported thirteen times from April 16, 2007 until November 14, 2008.^a

Controversy is mentioned seven times from August 7, 2007 until November 14, 2008.^b These words are used to describe the events and opinions being reported and are eventually applied as labels to the events. Journalists come to discuss the 'controversy' of Gardasil or of the HPV vaccine, rather than neutral events.

Moratorium

Some critics in Québec demanded a moratorium on the national immunization program until questions were answered; however, this demand was not fulfilled. This did not occur in English Canada.

^a April 16, 2007; April 17, 2007; August 2, 2007; August 7, 2007; August 8, 2007; August 9, 2007; August 22, 2007; September 25, 2007; September 29, 2007; February 19, 2008; April 21, 2008; September 2, 2008; and November 14, 2008.

^b August 7, 2007; August 22, 2007; September 29, 2007; February 19, 2008; April 21, 2008; September 2, 2008; November 14, 2008.

Key Actors

Many actors are mentioned throughout the Gardasil controversy. However, as would be expected, these vary according to linguistic and provincial contexts. For example, the main players in English-language news articles are: National Advisory Committee on Immunization (NACI), Society of Obstetricians and Gynecologists of Canada (SOGC), Canadian Immunization Committee (CIC), Canadian Pediatric Society (CPS), and Canadian Cancer Society (CCS).

In the French-language news articles, the key actors are:

l'Association des obstétriciens et gynécologues du Québec (AOGQ), Regroupement des gynécologues-oncologues du Québec (RGOQ), Fédération des femmes médecins du Canada (FFMC)/Federation of Medical Women of Canada (FMWC), Comité sur l'immunisation du Québec (CIQ), Réseau québécois d'action pour la santé des femmes (RQASF), and Institut national de santé publique du Québec (INSPQ).

Furthermore some community organizations supported the moratorium but were not mentioned in news articles more than once. These include: Fédération du Québec pour le planning des naissances (FQPN); Action pour la protection de la santé des femmes; and Regroupement des maisons de jeunes du Québec (RMJQ).

Chapter 5: Discussion and Conclusion

Discussion

Like the majority of the media studies discussed in the literature review, the present study used a representational approach rather than one of production or reception. The theory of representation asserts that media content is produced or constructed through a series of complex choices about how to depict a given topic (Gasher et al. 2007). The four most commonly cited media effects in studies of representation are Iyengar's (1997): informing audiences, agenda-setting, framing and persuading. In my findings three of these media effects are apparent: informing audiences, agenda-setting and framing.

The discussion above demonstrates that the media did influence the presentation of the events preceding, surrounding and following the Canadian federal government's decision to invest in a national HPV immunization program, thereby shaping them into the 'Gardasil controversy.' News coverage of these events and of the actors involved informed audiences, set the public agenda, and used framing in the presentation of facts, such that distinct themes, whether accurate or misleading, became the central focus of print media articles. These themes were repeatedly mentioned during the course of the debate.

First, it is clear that the news media were major sources of

information for the Canadian public concerning the proposed national HPV immunization program and the respective provincial immunization plans. However, the self-admitted limitations of journalists in reporting on science and health issues resulted in inaccurate and misleading information about the vaccine. This, combined with the public's reliance on media for information about new advances in drugs, technologies, and therapies, implies that these inaccuracies were taken at face value by the public.

Secondly, the media had a strong agenda-setting effect in regards to the Gardasil controversy since it generated intense coverage during the months of August and September 2007; it was a concrete issue, i.e., a national vaccination program; and was dramatic, i.e., the first vaccine to protect against some strains of HPV.

Thirdly, framing did occur throughout the Gardasil controversy. Framing is mediated by how issues are presented in the news. It would seem that episodic framing, which promotes individualistic attributions of responsibility, occurred. The responsibility for protection against HPV and cervical cancer was placed on individuals, such as parents, girls and women, rather than discussing HPV infection as a societal issue that affects the majority of female and male Canadians. Moreover, the news media framed this issue by subtly selecting certain aspects, such as Gardasil as being an anti-cancer vaccine and Gardasil as encouraging sexual activity in young girls, to make seem more important.

In regards to Iyengar's fourth media effect of persuasion, it is

difficult to determine the extent to which this may have occurred in the Gardasil controversy. According to Iyengar, persuasion consists of three factors: the message, what is being represented; the source, which actors are represented in the media; and the audience, the 'persuadability' of media consumers (1997, 215 cited in Collins et al. 2006, 91). Clearly, the news media had the ability to persuade the public about this issue since there were not other easily accessible sources of information about the vaccine. There were no public health education campaigns undertaken by a government agency. In this case, it appears that the media may have acted as filters for discussions of policy agendas.

Of the five themes I identified from the fifteen news media research studies reviewed, all were present in the representation of the Gardasil controversy. First, Canadians were primed to view the government's investment as positive and to perceive Gardasil as positive. The priming of an issue by the media demonstrates that the media are filtering information rather than acting as a conduit for information. Thus, regardless of the real or perceived benefits of a national HPV immunization program, it can be assumed that the print media played a role in the public's perception of the Gardasil vaccine. Second, there was a focus on new technologies and expert sources during the Gardasil controversy. Primary emphasis was placed on the merits of the new HPV vaccine rather than the less technological prevention method of Pap testing. Furthermore, similar to the findings of Caburnay and colleagues (2003), print media coverage of

Gardasil had a primary prevention focus, referring to reducing disease incidence instead of shortening the duration of disease through early detection and treatment (secondary prevention) or reducing complications and reducing disability through rehabilitation (tertiary prevention). Third, the media did have the ability to influence the construction of the issues in the Gardasil controversy through the repetition of certain themes and inaccuracies. Fourth, there was a lack of the broader context surrounding HPV infection, cervical cancer incidence, and mass immunization. The impacts of the social determinants of health were not considered nor were the distinct challenges faced by high-risk populations, such as issues of accessibility for rural, Northern or street women. Fifth, the manner in which research and facts about Gardasil were presented was problematic for the above reasons.

My findings indicate that the Gardasil controversy developed quite differently in English Canada and in Québec. Print media portrayals of the vaccine were, on the whole, more cautious in French-language articles. For instance, name-branding was not as common; the pharmaceutical name ‘Gardasil’ appeared less often than the generic term ‘the vaccine.’ Gardasil’s ability to prevent cervical cancer was highlighted and the myth that Gardasil can eradicate cervical cancer was wholly absent from French-language articles.

Conversely, the depictions of Gardasil seem to become incrementally dramatic over time among English-language news articles.

Sensationalist language was more often utilized to describe Gardasil by English-language journalists. Additionally, the characterization of Gardasil as a 'first' in immunologic history was over-emphasized such that this status alone lent the vaccine authority. Although the development of a vaccine against a virus that can lead to cancer is a great achievement in medical history, journalistic zeal over-shadowed calls for caution and the need for further longitudinal data.

Moreover, the notion presented by the English print media that the Gardasil vaccine can eradicate cervical cancer is incorrect and misleading. First of all, the vaccine protects only against the four most common strains of HPV: numbers 6, 11, 16 and 18. Only two of these may lead to cervical cancer: high-risk strains 16 and 18. Yet, these two strains are only responsible for about 70% of cervical cancer cases. There are over 100 other high-risk and low-risk strains of the human papillomavirus that have been identified so far by scientists. However, there are other strains that exist as well. Thus, it would be impossible to eliminate all cases of cervical cancer with a vaccine that only targets four out of 100+ strains of HPV. This sub-theme of Gardasil as the solution for the eradication of cervical cancer is an example of inaccurate and faulty health reporting.

What could be eradicated by Gardasil are the four most common strains of HPV. However, the manner in which this vaccine was pushed onto the provinces and territories and onto the Canadian public has hindered the public's uptake of Gardasil (Blackwell, 2008; Puxley, 2008).

Fewer parents consented to having their daughters immunized than expected; in April 2008, the Ontario Ministry of Health reported that only 53% of the 76,000 eligible girls had received the vaccine (Ibid.). Controversy among religious groups garnered negative attention for the vaccine and caused delays in provincial vaccination programs (Jacobs, 2008; *National Post*, 2008; Rupert, 2007). Neither local nor provincial support was in place when the federal government decided to support Merck & Co., Inc.'s HPV vaccine with \$300 million of the Canadian health budget.

Even if wide immunization were accomplished, what of the women aged 14 to 26 who are already infected with one of the strains of HPV and cannot be administered Gardasil? What of the boys and men who are carriers of HPV strains and who cannot be administered Gardasil either? These individuals could potentially infect each other with different strains. For example, if a young woman already has HPV-11 then she cannot be inoculated with Gardasil and could be further infected with HPV-16 or HPV-18, the high-risk strains, or another less common strain. Also, if the majority of the target population is immunized against the four most common strains, will this cause other strains to mutate? Approximately 40 types of HPV can infect the genital area of women and men (WHO/UNFPA, 2006). Most importantly, there is the question of Gardasil's duration of immunity. Gardasil has only been proven effective for five years; therefore, what happens to the thousands of girls and

women who have been vaccinated? Beginning in 2012, the provinces of Nova Scotia, Ontario and Newfoundland Labrador may have to provide booster shots or a whole new round of inoculations to the girls and women who were given Gardasil in 2007. The remaining provinces will also confront this issue in the following six to seven years.

The importance of screening was much more present in English-language news articles. Although this theme and its respective sub-themes are mentioned in French-language articles, they make an appearance but are not as persistent as in their English-language counterparts. For instance, the merits of regular Pap testing are exalted for a sustained period of time within English-language news articles. Similarly, the need for women and girls to continue having regular Pap tests after vaccination or despite being immunized is stated on a regular basis throughout the year 2007: from January until later November.

The theme of sex was most apparent in English-language articles, whereas their French-language counterparts often referenced these themes in relation to other contexts. For example, the first sub-theme about Gardasil's ability to encourage sex and the second sub-theme regarding promiscuity and conservatives were never mentioned as a concern within Québec. Additionally, abstinence, the third sub-theme, never appeared whatsoever in French-language newspapers. The fourth sub-theme, creating a false sense of security, only occurred in one article. Clearly, the issue of sex was not a salient component of the Gardasil controversy in

Québec. In fact, there did not seem to be enough controversy in the Québec context to warrant the name ‘Gardasil controversy.’

In terms of the theme of cost, the long-term costs of administering Gardasil were not considered in English-language articles whereas this was discussed in detail in French-language print media. Additionally, the lack of cost-effectiveness data was more often highlighted in French-language articles. Of the four major themes, this theme was the least comprehensive and the least prone to variations.

Despite the detailed themes represented in the print media’s portrayal of the Gardasil affair in Canada, there were also distinct silences. What was not present in the news coverage is a discussion of the gendered implications of the national immunization program. The very fact that only females could, and were, being vaccinated during the two and half years examined is reason enough to explore gendered differences. Gender should be considered in all policies, and particularly in this case since only girls and women are eligible for the vaccine. Although there was an over focus on women in discussions of Gardasil, gender-based analysis was almost wholly absent from the development of the Gardasil controversy. The invisibility of men occurred rather than the invisibility of women, as is common. Besides a single article that mentioned the rate of efficacy if boys were to be inoculated with Gardasil, the topics of male responsibility in sexual health and male role in HPV infection were altogether lacking. This is surprising for two reasons: first, feminists and women’s health

advocates were involved in the debate; and second, discussions of STIs usually include both partners since STIs are transmitted between two individuals. It is possible that the media did not fully report the criticisms of feminists and women's health advocates.

A partial silence occurred regarding the issue of immunity duration. The fact that the Gardasil vaccine was only approved and recognized for five years of protection was downplayed in news coverage. Although this limited duration of immunity was mentioned in articles, it was rarely questioned, critiqued or placed at the forefront of journalistic concern. Clearly, the print media contributed to the development and articulation of the Gardasil controversy through their use of informing audiences, agenda-setting, framing, priming, and other media effects.

Conclusion

In conclusion, the presentation of information regarding HPV infection, cervical cancer and the Gardasil vaccine was influenced by the biases of the Canadian print media. Focusing on explicitly chosen issues resulted in the four major themes identified above and is an example of the framing of health issues by the print media. Misleading and inaccurate information, which was part of the themes, subsequently came to form the body of common knowledge that the majority of the Canadian public relied on to make their 'informed' decisions about the national HPV

immunization program and about the Gardasil vaccine itself. My findings demonstrate that the events and issues surrounding the federal government's investment in the Gardasil vaccine were represented quite differently in print media according to linguistic context in Canada. Further research is warranted into the development of the Gardasil controversy across Canada with a focus on the public's perception of media messages. Future research should focus on the reception aspects of the Gardasil controversy and the inception of the media messages.

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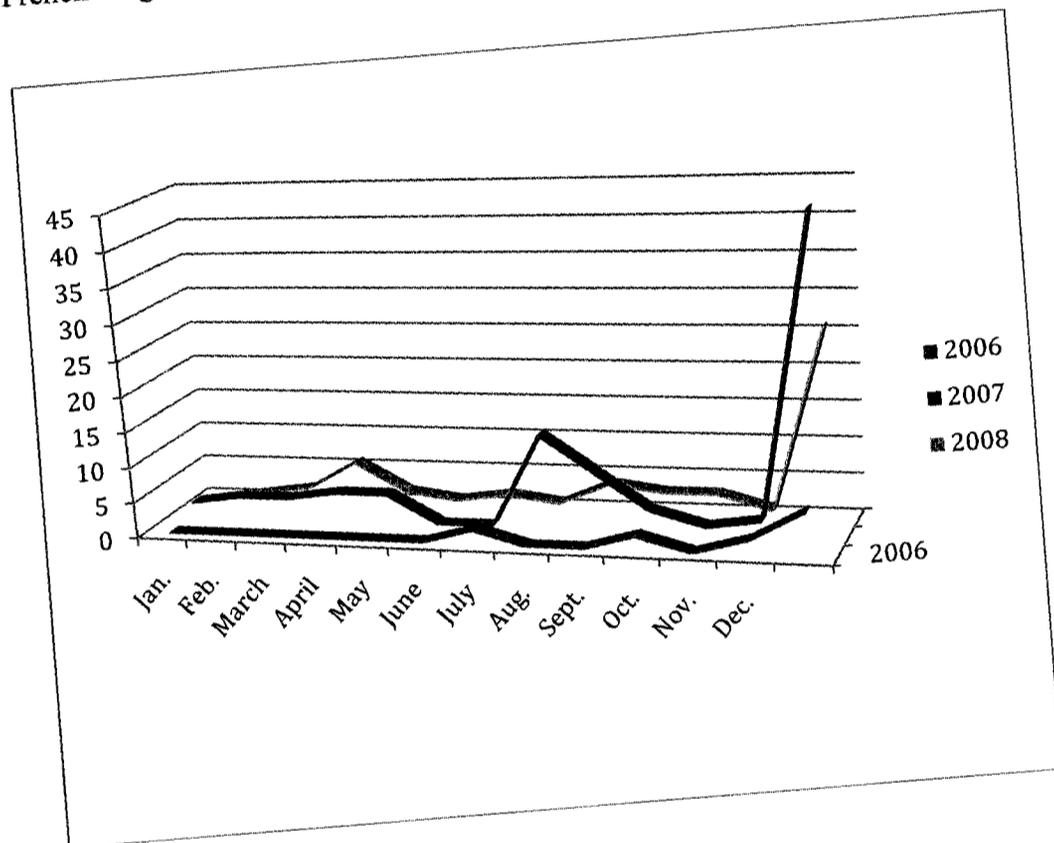
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Tables

Table 1. Total # of Articles Found According to Month (English- and French-languages combined)



Date of Significant Event	Number of Articles (* denotes articles about the significant event on later dates)
July 10, 2006: Health Canada approves Gardasil	0
Jan. 31., 2007: NACI makes recommendation	2 EN
March 19, 2007: Federal government announces \$300 million budget allocation	0
May 10, 2007: Publication of 2 studies, supported by Merck, in <i>NEJM</i> issue confirm Gardasil's efficacy	1 FR May 10, 2007
July 2007: NS is first province to announce plan to introduce vaccine in schools	0
Aug. 1, 2007: Lippman et al. article in CMAJ	0 (*3 EN Aug. 2, 2007)
Aug. 3, 2007: ON announcement for 2007 schoolyear	1 EN
Aug. 7, 2007: NL announcement for 2007 schoolyear	4 EN
Sept. 24, 2007: QC announcement for 2008 schoolyear	0 (* 2 FR Sept. 23, 2007; 2 EN & 2 FR Sept. 25, 2007)

Table 2. Significant Events compared with # of Articles

Table 3. Percentage of Articles according to Language and Media Type

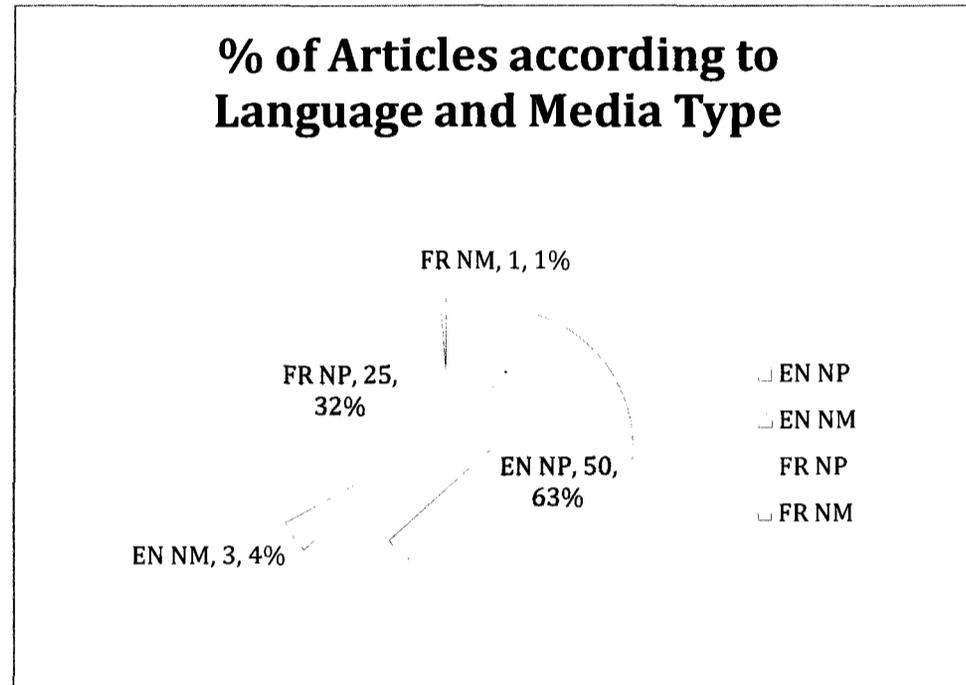


Table 4. English-language newspaper articles by year

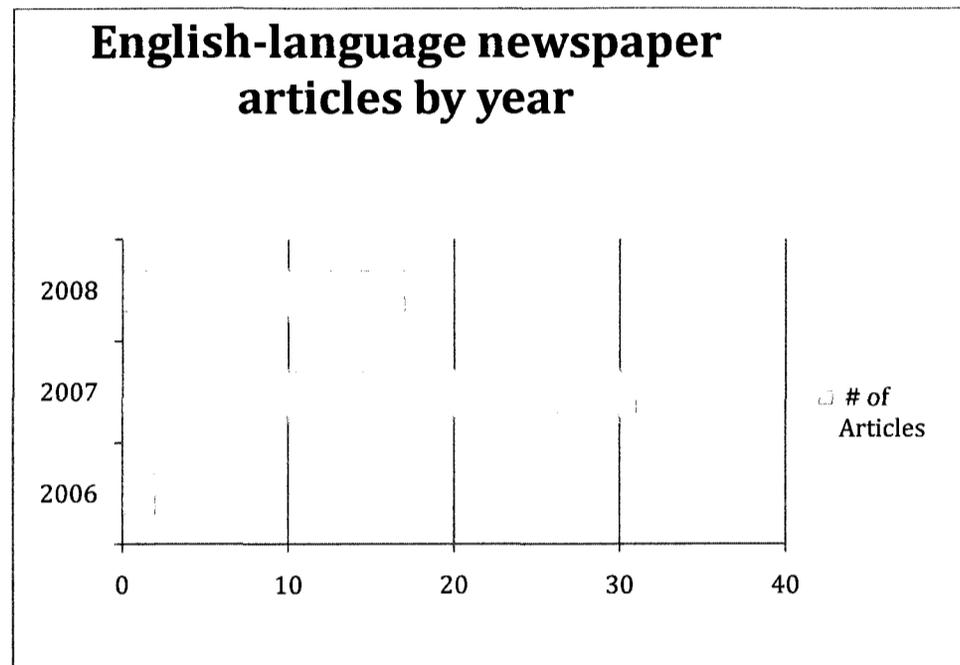


Table 5. English-language newspaper articles by month

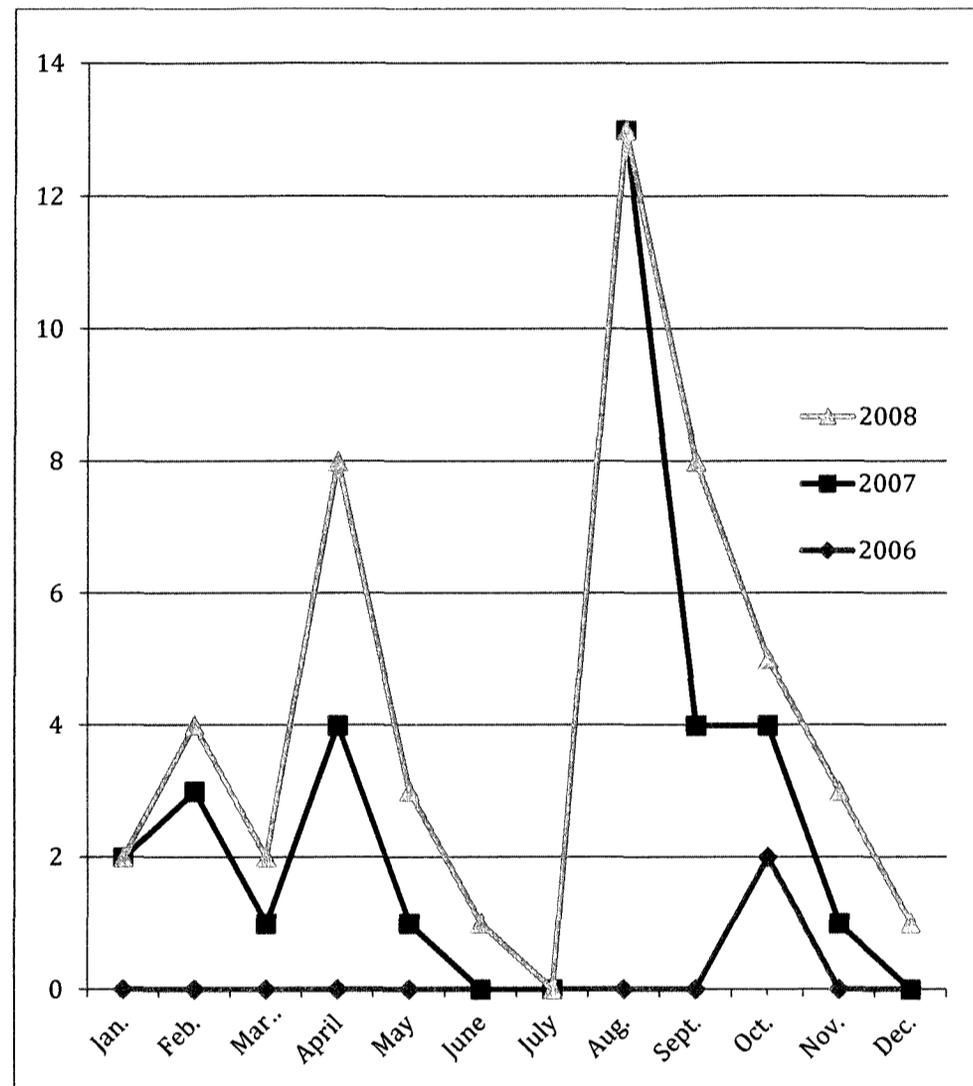


Table 6. French-language newspaper articles by year

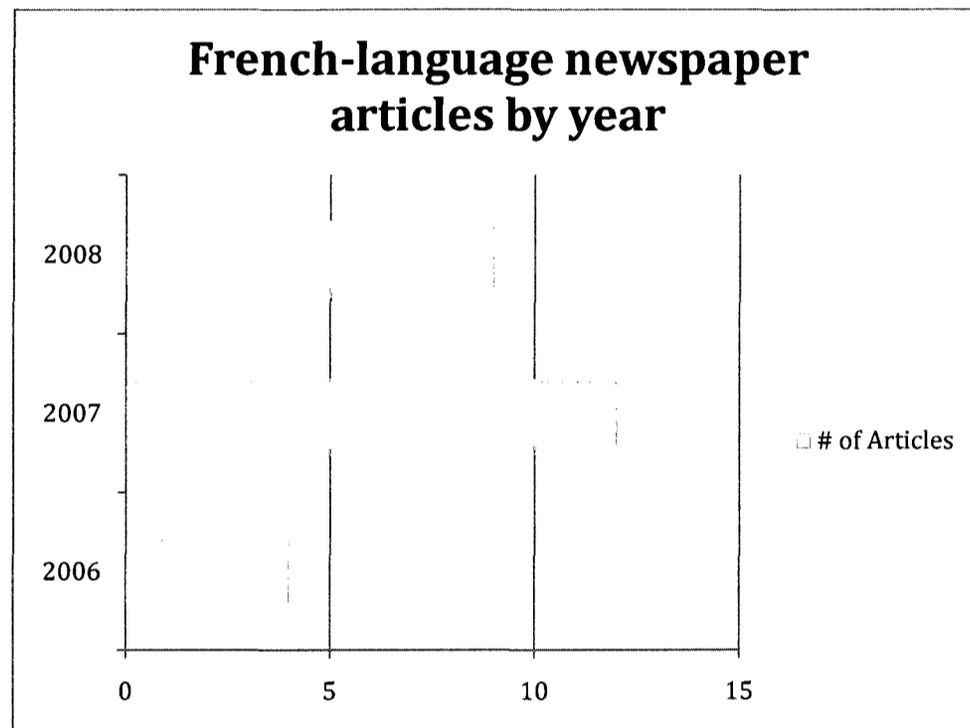


Table 7. French-language newspaper articles by month

