Printing the Pandemic: An Analysis of H1N1 Vaccine News Coverage

By:

Heather McBride

A thesis submitted to the Faculty of Graduate and Postdoctoral Affairs in
partial fulfillment of the requirements for the degree of:

Master of Arts

in

Communication Studies

Carleton University
Ottawa, Ontario

© 2014
Heather McBride

Abstract

This thesis examines print media coverage of the vaccination debate during the H1N1 pandemic in 2009. It explores how the agenda-setting press in North America framed the benefits and risks of vaccination: the key themes it emphasized, the sources whose voices it privileged and those it overlooked, and the cultural and historical references it invoked. Although news headlines initially depicted an ominous message of doom, over time the framing of the disease shifted as the severity of the illness failed to live up to its worst-case projections. The research shows that the coverage significantly privileged the claims of public health officials, provided very little space for dissenting viewpoints and perspectives, and emphasized themes of risk, uncertainty, moral duty and responsibility.

Acknowledgments

I would like to express my gratitude and thanks to my thesis advisor, Josh Greenberg, and second reader, Mary Francoli. Without the detailed and constructive comments on earlier drafts of the thesis, over the past year, this final version would not have been possible. A very special thank you is extended to Eileen Saunders, who helped guide my thesis and its focus at the onset, providing valuable input and commentary.

Finally, I would like to recognize my loving parents and twin sister, who acted as my backbone throughout my Masters. Without their encouragement and continued support I am not sure I would have survived this degree. Your support and love has meant the world to me.

Table of Contents

Acknowledgments.....	ii
Abstract.....	iii
Table of Contents	iv
List of Tables.....	v
List of Appendices.....	vi
Introduction.....	1
Mass Media and the Vaccine Push.....	5
Risk Society	5
Thesis Focus & Organization	8
1 Theoretical Framework	11
History of Vaccine Mistrust.....	15
Theories of Risk Discourse	24
Theoretical Foundation.....	30
Agenda-Setting.....	30
Framing.....	31
Aspects of Newsworthiness.....	37
Encoding/Decoding	39
2 Study Design and Methods.....	43
Stage One: Quantitative Method	44
Stage Two: Thematic Analysis	48
3 Research Findings	51
Content Analysis Findings.....	51
The Type of News Coverage.....	51
News Foci.....	54
Source Use	59
Thematic Analysis Findings.....	68
Risk.....	68
Fear.....	73
Reassurance.....	75
Government Failure	83
Anti-Vaccination	87
Vaccination as Moral Duty	90
Conclusion.....	92
R ₁ : Media Agenda.....	92
R ₂ : Risk and Responsibility in the Coverage.....	93
R ₃ : Differences Between the GM and NYT Vaccine Coverage.....	94
Study limitations.....	98
Future Research.....	99
Appendix.....	101
References.....	113

List of Tables

Table 1	News Foci Findings.....	55
Table 2	News Sources Findings.....	60

List of Appendices

Appendix A: Preliminary Search Results.....	101
Appendix B: News Focus Coding Sheet.....	102
Appendix C: Source Coding Sheet.....	103
Appendix D: General Characteristics of the Articles Coding Sheet.....	104
Appendix E: News Foci Findings.....	105
E.1 Globe and Mail Findings.....	105
E. 2 New York Times Findings.....	106
Appendix F: General Characteristics of the Articles.....	107
Appendix G: Source Analysis Findings.....	108
G.1 Globe and Mail Findings.....	108
G. 2 New York Times Findings.....	109
Appendix H: Definition of News Foci.....	111
Appendix I: Definition of Sources Coded.....	112

Introduction

This is a study of how media framing shapes how populations understand public health issues and problems. Focusing on the case of H1N1 and the debate about vaccination, it asks what are the characteristics of the media agenda and considers their possible impacts: how is the issue being framed, which sources are shaping the coverage, and which themes are structuring the discourse? Addressing and responding to these questions raise important insights for how public health issues and risks are understood, and it affords opportunity to reflect on wider questions about media influence.

In 2009 the world was faced with the threat of pandemic. H1N1, also known as influenza A or swine flu, was first detected in March 2009 in Mexico, and by April the disease had spread to 38 nations and was responsible for approximately 17,000 laboratory-confirmed deaths worldwide. However this number is conservative, as estimates by the U.S. Centers for Disease Control and Prevention place the death toll around 284,000 as many who died of influenza, or influenza complications, were not tested for the disease as they lacked access to primary health care. The speed with which this virus spread led the World Health Organization (WHO) to place H1N1 at a phase 6, the highest phase on the pandemic alert scale, declaring H1N1 to have reached the stage of pandemic (Gilman, 2010)(WHO, 2012). Phase 6 on the WHO pandemic scale is reached when a human-to-human virus has had confirmed “community level outbreaks” in at least two different WHO regions (WHO, 2012).

The roots of H1N1 can be traced back to 1918 when a virus of avian origin overcame the species barrier and started infecting humans, leading to a pandemic that

resulted in nearly 100 million deaths. During this time, pigs were reportedly infected with a similar virus (Sullivan, Jacobson, Dowdle, & Poland, 2010). The 2009 H1N1 virus is derived not only from the 1918 avian origin that infected swine until the 1980s in Asia and the Americas, but also from an avian-like swine H1N1 virus that emerged in 1979, infecting pigs in Europe (Sullivan, Jacobson, Dowdle, & Poland, 2010).

The 2009 H1N1 virus is not necessarily new, as it has been circulating in various forms since 1918. Most individuals born before 1956 have had previous infection experience with prior strains of H1N1 like the ones mentioned above (Sullivan, Jacobson, Dowdle, & Poland, 2010). Many of the symptoms associated with the 2009 H1N1 virus (fever, cough, sore throat, body aches, chills and fatigue, with extreme cases presenting vomiting and diarrhea) are similar to those that occurred in 1918, although with far less devastation. The gross difference in severity, between the 1918 and 2009 H1N1 virus, could be accounted for by immunity built up in older individuals (from previous exposure to the virus), as well as medical advances (the H1N1 vaccine as well as general improvements in healthcare).

The 2009 strain of influenza is an acute viral infection affecting the respiratory system of individuals (Shaban, 2009). It is a contagious virus thought to be transmissible in one of three ways: direct contact, like hand to hand; droplet spray, such as through a runny nose or from a sneeze; and airborne exposure (Sullivan, Jacobson, Dowdle, & Poland, 2010). While this virus appeared around the same time as the seasonal flu and had many similar symptoms, it was different in one key respect: it infected primarily the young and healthy (The Ontario Ministry of Health, 2009).

The first case of H1N1 in Canada was reported on April 26, 2009. By 2010 the number of laboratory-confirmed cases within Canada was 8,678 (Scott K., 2010). With H1N1 classified as a pandemic, quick and immediate countermeasures towards its spread were required. The best method for prevention of infection from the virus was vaccination. The first vaccines for H1N1 were licensed in mid-September 2009 and by October most industrialized nations had produced vaccination programs (Velan, Kaplan, Ziv, Boyko, & Lerner-Geva, 2011).

Vaccination is the most effective preventive measure against morbidity and mortality associated with influenza (Sullivan, Jacobson, Dowdle, & Poland, 2010). Vaccines have been hailed as one of the most successful biomedical tools for public health, as the World Health Organization estimates that immunization averts around three million deaths every year (Kata, 2010)(Anderberg, Chevalier, & Wadsworth, 2011). With this knowledge, Canada set in place a ten-year contract in 2001 with ID Biochemical that required the company to supply all of Canada's influenza vaccine needs in the case of a pandemic (Eggleton & Ogilvie, 2010). Later sold to GlaxoSmithKline (Galloway, 2009a), the contract gave Canada priority access, ensuring that its quota of vaccines would be fulfilled before any other purchaser. Health Canada expedited the approval of the vaccine, so that the vaccine could reach the population quickly.

With limited supply, the Public Health Agency of Canada (PHAC) issued a prioritization of groups for vaccination in 2009 to ensure that the most vulnerable citizens would be protected from infection (Canadian Institute for Health Information, 2010). The first priority group consisted of "persons under the age of 65 that had chronic conditions, pregnant women, children six months to five years old, individuals living in remote

locations, health care professionals and immunocompromised persons” (Eggleton & Ogilvie, 2010, p. 46). The second priority grouping included all other citizens. The priority groupings for immunization, and the information on where to go to get immunized, were released to the public largely through a mass media campaign.

The United States, by contrast, relied on several vaccine suppliers, most of them based in Europe, as they could only produce 20% of the vaccine supply needed domestically (Galloway, 2009a). Furthermore, U.S. officials decided against using an adjuvanted H1N1 vaccine¹ as they feared the uncertainty existing around adjuvants would lead citizens to question the vaccine’s safety, and reduce the likelihood of uptake (Pollack, 2009a).

The U.S. vaccination program started in early October (Hartocollis & McNeil Jr., 2009) and included a nasal spray flu vaccine for children (Pollack, 2009b). The top priority group for vaccination in the U.S. included about half the population, approximately 159 million Americans: “health care workers and emergency medical responders...pregnant women, children and young adults from 6 months to 24 years, and people ages 25 to 64 with medical problems like asthma, diabetes or heart disease” (Grady, 2009b). By the end of October, the U.S. was facing a shortfall of vaccine supply, with around 30% less product than what was predicted (Pollack & McNeil Jr., 2009). A further struggle in the H1N1 vaccination campaign in the U.S. occurred in December when thirteen lots of the nasal-spray vaccine were recalled due to lack of potency (Grady, 2009a).

¹ Adjuvanted vaccines are different from regular vaccines as they include an irritant that increases the body’s immune response, allowing for smaller amounts of the inactive virus to be used in each vaccine dose.

Mass Media and the Vaccine Push

One of the best ways to reach the public in times of health crisis or risk is through the mass media (Lundgren & McMakin, 2009). The media disseminate information that enables citizens to make sense of complex issues and situations (Gamson & Modigliani, 1989). The potential seriousness of H1N1, combined with high profile attention to a slow ticking death count, drove news stories about the vaccine to a position of high prominence on the media agenda, with stories focusing on the production, distribution, and safety of the vaccine achieving wide circulation.

The emergence of the Internet as a global news platform made international media, particularly U.S. news and public affairs programming, more accessible to Canadians. The H1N1 pandemic occurred long before coverage in major news organizations, including the *Globe and Mail* and *New York Times*, became locked behind paywalls. Due to the strong political, economic and cultural ties between the U.S. and Canada (Eid & Duffin, 2011), Canadians are regularly apprised of American issues and events (Mills, 2004). Most Canadians can easily access U.S. media through American cable news channels in Canada, U.S. newspapers, and the Internet. This was certainly true during the H1N1 scare.

Risk Society

Debates about the value and efficacy of vaccines also play out in a context of increased public skepticism about the role of science in our lives, and of the increasingly fluid nature of global health risks. According to social theorists Ulrich Beck and Anthony

Giddens, we live in a society characterized by an increased awareness of risk, uncertainty and insecurity. For Beck, risk is the state of mind one has in “anticipation of catastrophe” (Beck, 2006, p.332). In the risk society, governments adopt a “modern approach to foresee and control the future consequences of human action, the various unintended consequences of radicalized modernization” (Beck, 1999, p. 3). A risk thus becomes a crisis or catastrophe when its anticipation has been brought to an end, and it becomes real, as for instance, when an anticipated terrorist attack actually occurs (Beck, 2006, p. 332). More importantly, Beck (1998) argues that risks are ‘man-made hybrids’ as they are constructed from, and arise out of, “politics, ethics, mathematics, mass media, technologies, cultural definitions and perceptions” (p. 11). It is through, and across, these institutions that risks are constructed and defined.

Beck further argues that risks, unlike demands, “can be more than just called forth, prolonged in conformity to sales needs, and in short: manipulated” (Beck, 1992, p. 56). Science determines, detects, and calls forth risks while the public largely perceives risks. It is deviations from this norm, which Beck says indicates the extent of ‘irrationality’. Beck compares the majority of the public to first time engineering students: technological elites only need to stuff the public heads full of facts and details, and then they will have, or share, experts views. However, Beck says the view that the majority of public acts in such a manner, is wrong as “statements of risk contain comments on *“how we want to live”* which go beyond the boundaries of natural and engineering sciences alone” (1992, p. 58).

Beck (1992) argues that risks do not exist until they have been defined, and it is the scientists that do the defining. “In the scientific world, one can see [the] consequences

[of modernization risks] but they do not actually ‘exist’ until they have been ‘scientifically proven’” (Beck, 1992, p. 61). Due to the strict and particular nature of scientific practices, scientifically proving risks is time consuming, and therefore not all risks can be defined. This also occurs, as scientific practices might only be able to define a risk once it has already happened. What this means for the average citizen is that they now have to become experts on modern risks, for when the scientific society fails them they must pick up the slack. However, citizens have no real way of truly knowing and testing risks. As society increasingly becomes a “laboratory” for the testing of scientific developments, Beck argues, trust in scientific expertise has declined and the ever presence of risks in everyday life has increased (see also Cottle, 1998).²

As perceptions about risk have increased so too has activism associated with exposure to risk. Beck (1992) states “risk consciousness and activism are more likely to occur where the direct pressure to make a living has been relaxed or broken, that is, among the wealthier and more protected groups (and countries)” (p. 53). This explains why, for example, advocacy against mandatory vaccination remains particularly strong in developed countries such as the UK, New Zealand and parts of North America. Our own personal experiences are causing risks to no longer be invisible. For instance, if one personally witnesses signs of a risk, such as pollution, then one becomes sensitized to the symptoms of that risk. The more conscious one is of a risk, the higher place they hold in risk positions. However, at the same time the extent of, and potential harm from, these risks are “dependent on external knowledge” (Beck, 1992, p.53). Beck makes this argument, as risks such as poisonous chemicals in food, are beyond our knowledge. The

² A lack of trust in experts exists, in part, due to the lack of consensus that can be reached amongst them (Ekberg, 2007, p.357).

average person is reliant on external sources and knowledge to learn the amount, and effects of chemicals, as we have no way of knowing otherwise. This is where the failure of sciences to define risks can cause serious issues, as they are an external source of knowledge used, and relied upon, by citizens.

The picture Beck paints for our society is one of citizens living in a world where they are constantly bombarded by risks, which they fear, and have to rely on themselves to manage and mitigate. In the case of H1N1, risk society theory provides some useful context for how the risk of infection was constructed by, and in, the media, and might help to explain how citizens perceived the threat of the disease and the uncertainties and anxieties that would have informed their perceptions. The analysis of media coverage allows us to know how much of a focus was placed on risk and how risk surrounding the vaccine was constructed. This information might help expand on socio-cultural changes occurring in society and allow for further research on people's perceptions and responses to similar health risks.

Thesis Focus & Organization

The focus of this thesis is coverage of the H1N1 vaccine in the *New York Times* (NYT) and *Globe and Mail* (GM), major agenda-setting newspapers in the U.S. and Canada, respectively. As the vaccine was promoted as the best form of prevention during the pandemic by national and local public health authorities, understanding how the media framed the vaccine is of considerable public interest. It is of significance as it can provide insight into how health risks are communicated to the public, and can potentially

aid in explanations of vaccine uptake, and vaccine beliefs in each country. The research is organized around the following questions:

R₁: Who set the agenda, and framed the discourse around the risks of the H1N1 Vaccine?

R₂: How are issues of risk and responsibilities articulated within the coverage?

R₃: Were there differences in how the newspapers portrayed the debate about the H1N1 vaccine, and what might this mean for how we understand health risk?

Discovering who is setting the agenda and how the vaccine is framed is important as it provides the foundation for how news media shape public perceptions about health risk and informs individual behaviours and decision-making.

The thesis is organized as follows. Chapter 1 presents a review of the literature on the 2009 H1N1 pandemic. This includes a discussion of past vaccination campaigns, and how they have been reported in the media. The objective of this chapter is to provide context for the coverage of the 2009 H1N1 vaccine, including the role of trust, anxiety and fear. A discussion of media effects, how the media frames news items, and what and who is setting the agenda, is included. Chapter 2 presents an overview of the research methodology and the rationale for using a mixed methods approach. Content analysis was first used to gain an understanding of the big picture of the H1N1 vaccine coverage: the type of coverage, patterns of source use, and main areas of thematic focus. A qualitative analysis was carried out to explore and identify the latent meaning of the articles, i.e., the cultural implications of the frames used. The purpose of using both methods was to gain a fuller understanding of the text. Furthermore, by using both methods the weakness of one method could be mitigated by the strength of the other. The research findings are

presented in Chapter 3, in which I explain how the vaccine was framed; who set the media agenda; how issues of risk and responsibility were articulated in the coverage; and the differences between the two newspapers. The final Chapter provides a conclusion to this work, readdressing the research questions, drawing connections to past risk and vaccine research, and providing questions for further areas of study.

CHAPTER 1 Theoretical Foundation

This chapter will address and present some pertinent studies and research in the area of media representations of disease, vaccine, and risk. There is a focus placed on literature examining health risks of diseases and vaccines, however more research on media representations of infections, than of vaccines, is provided, as they are more common. This research can be reviewed to explain how risk has become a central theme in the media depictions of public health issues.

Previous studies examining media representations of the H1N1 vaccine report varying findings. A U.S. study focused on how gain versus loss-framed messages influenced behavioural intentions for vaccination (Nan, Xie, & Madden, 2012). A “gain-framed message” presents benefits of vaccination, whereas a “loss framed message” presents “costs” (p.559). For example, a gain-framed message would state that ‘by becoming vaccinated you will decrease your chances of contracting H1N1’, whereas a loss framed message would be, ‘by not getting vaccinated you will increase your chances of getting H1N1’. The study showed that when vaccines were perceived to be unsafe, “loss-framed” messages were most effective at increasing vaccination intention (p.564). For example, attitudes and intentions towards the vaccine were improved most, for those that did not perceive the vaccine as being overly effective, with loss-framed messages. Conversely, “gain-framed” messages were more effective, however only marginally, than “loss-framed” messages at increasing behavioural intention for vaccination when the vaccine was believed to be safe (p.565).

Goodall, Sabo, Cline and Egbert (2012) focused on electronic news coverage of H1N1 between April - September 2009 and examined the prevalence and nature of threat and efficacy messages online. Efficacy messages refer to stories that mention actions that individuals and communities can take to protect themselves from the virus, and response efficacy (the effectiveness of suggested methods of prevention). The findings showed stories that referenced the threat of H1N1 were often overemphasized (p.341) and sensationalized (p.338). For example, the media overemphasized death by mentioning it frequently in stories, even though the U.S. Centers for Disease Control and Prevention (CDC) provided information about the rareness of mortality associated with H1N1 infection. The findings reveal that both individual and collective efficacy did appear in just over half of all stories (p.352). Only 15% of the stories directly referenced effectiveness of suggested prevention methods in addressing the threat posed by H1N1 (p.349). These findings point towards a lack of information being provided in regards to the means of effectiveness, for prevention methods of H1N1.

Studies about the H1N1 vaccine are more concerned with investigating vaccine uptake or safety with next to no attention to how media coverage shaped risk perception of the vaccine. These studies often focused on factors that influenced vaccination decisions. Some of these factors found to positively affect vaccination were: belief that the vaccine was safe, belief that there were no side effects to the vaccine, and belief in the effectiveness of the vaccine (Brien, Kwong, & Buckeridge, 2012). A similar study noted that beliefs about the safety of the vaccine and the possibility of side effects were the key factors in an individual's appraisal of coping with the threat of H1N1 (Bish, Yardley, Nicoll, & Michie, 2011).

A separate meta-analysis of studies undertaken on the safety of the vaccine revealed that the vaccine holds very little risk (Wijnans, De Bie, Dieleman, Bonhoeffer, & Sturkenboom, 2011). Looking at seven separate studies on the safety of the monovalent inactivated H1N1 vaccine in children, it was found that there were no serious adverse events related to vaccination. However the highest level of concern for safety was focused on the AS03 adjuvant vaccine. This vaccine, which was used in Canada, had a recommendation that children receive two smaller doses, rather than the one stronger dose recommended for adults (Garcia-Sicilia, et al., 2011, p. 4354). Across five different clinical studies of the adjuvanted vaccine and its effect on children and adolescents, the biggest side effect discovered was mild local reactions (Wijnans, De Bie, Dieleman, Bonhoeffer, & Sturkenboom, 2011, p. 7563). The second most common side effect was minor fever (lasting commonly a day), often occurring after receiving the second dose of the vaccine (Wijnans, De Bie, Dieleman, Bonhoeffer, & Sturkenboom, 2011, p. 7563)(Garcia-Sicilia, et al., 2011, p. 4357). Therefore, the adjuvanted H1N1 vaccine presented no cause for serious concern as it was found to only produce minor side effects.

These studies suggest the value of looking at underlying factors affecting beliefs about the safety of the vaccine, particularly given that concern about vaccine safety was arguably unfounded. As individuals use a variety of media sources as information tools to help them make sense of complex issues and situations (Gamson & Modigliani, 1989), news coverage arguably played a significant role in the decision making processes relating to vaccination.

Vaccines have debatably become a victim of their own success (Kata, 2010) (Larson, Cooper, Eskola, Katz, & Ratzan, 2001). The effectiveness of vaccines has been

so successful that the consequences of vaccine preventable diseases are not commonly seen or understood by most citizens. This leaves individuals with the feeling that being vaccinated poses a greater risk than the disease the vaccine prevents (Kata, 2010). The effectiveness of vaccines has allowed issues of vaccine reactions to seem greater and more common than deaths from disease. This creates a paradox leading to the re-emergence of anti-vaccine sentiments. Media coverage plays an important role in the construction of risk discourse relating to vaccines.

Building trust for vaccines depends on understanding how vaccines are perceived and the risks associated with them (Larson, Cooper, Eskola, Katz, & Ratzan, 2001). As noted above, public confidence in vaccines is placed at risk, in large part because their success has led to a greater focus on vaccine side effects than the consequences of the diseases they protect against. Larson et al. (2001) argue “a mix of scientific, economic, psychological, socio-cultural, and political factors” influence decision making towards vaccination (p. 527). These factors include: vaccine schedules, and the strain associated with meeting these schedules; mandatory vs. voluntary vaccination; questions regarding the financial motives of pharmaceutical companies and the politics involved with these decisions; elitism of parents thinking they do not need to expose their children to the potential risk or side effects from vaccines if enough other children are being vaccinated (relying on herd immunity); non-acceptance of scientific evidence, and less risk tolerance for medicating the healthy instead of the sick (p.526-527). These all amount to some key areas that can be addressed or ignored within media coverage and influence belief around the necessity and safety of a vaccine.

History of Vaccine Mistrust

Public mistrust of flu vaccination campaigns in the U.S. has its roots in the mid-1970s. In 1976, an outbreak of H1N1 was discovered at Fort Dix, New Jersey (Wade, 1978). While the World Health Organization recommended the U.S. government “wait and see” what happens, the Ford administration ignored that advice (Dehner, 2010). Instead, after consultation with top health advisors and virologists, President Ford, put forth the largest immunization campaign ever launched in the U.S. (Boffey, 1976a, p.636).

Ford first announced the campaign in a press conference. He further showed his direct support of immunization when he received a flu shot on TV in what several described as a calculated political event given its proximity in time to the next presidential election: many believed the vaccination campaign was a ploy to help bolster Fords chances of re-election (Boffey, 1976a). The campaign was fraught with further complaints that the administration had overreacted, commencing an immunization campaign based on flimsy scientific evidence.

The 1976 swine flu immunization campaign was heavily criticized. Scientists questioned whether the vaccine would work, as past influenza vaccines had not been fully effective (Boffey, 1976b). Three articles published in *The Lancet* suggested that the virus was not predisposed to spread from person to person, and that the effects of the virus were relatively mild. Reports like these caused citizens to question the government’s motives. Further questioning, and fears, appeared when the vaccination campaign was underway. The immunization campaign had to be halted as a rare side effect, Guillain-

Barré syndrome (GBS), “an acute, postinfectious, immune-mediated attack on the nervous system”, was being connected to the vaccine (Nachamkin et al., 2008, p.226) (Wade, 1978). The 1976 H1N1 vaccine had rates of vaccinated individuals developing GBS between 4.9 and 11.7 cases per million, whereas subsequent influenza vaccines (namely the 1992/93 and 1993/94 vaccines) had 1 excess case per million (Nachamkin et al., 2008). Trust in the safety of the vaccine, and in the administration that flogged it, was seriously damaged.

The 1976 U.S. immunization campaign also fostered public concerns about the politics and economics of vaccine manufacturing (Sencer, 2011). Vaccine makers refused to produce the vaccine unless they could be protected against claims of adverse effects, which many citizens took to mean something was wrong with the vaccine. Further manufacturing issues occurred when the incorrect strain of the virus was used in the vaccine production, making the vaccine less effective (Dehner, 2010). Later, the *New York Times* labeled the campaign a “fiasco” due to all the problems that occurred, as well as the fact that the pandemic never actually materialized as a serious disease that caused widespread illness and death. In fact, no other cases were discovered outside of the initial outbreak at Fort Dix. The failure of this campaign can be understood as one reason why many Americans today continue to mistrust government and expert decisions, especially around flu related scares, and to explain apprehensions around vaccination more generally (U.S. Department of Health and Human Services, 2009).

Often, types of preventative medication, including vaccines, are centered on the concept of individual responsibility (Eborall & Will, 2011). This contemporary ‘individualization of risk’ suggests that citizens have an active role in managing the

health risks they face (Abeysinghe & White, 2011). For this reason many public health campaigns call for citizens to take responsibility for their own health (Greco, 1993). Through preventative medical options, like vaccination, not only does one protect oneself, but also helps to protect the rest of society through minimizing spread (Hier, 2002). Individuals often resist preventative medication due to a combination of inconvenience (i.e. lining up at clinics for flu shot) and physical risks, such as side effects (Eborall & Will, 2011). As will be shown below, both concerns were raised in the context of the Canadian H1N1 vaccine campaign, as well as in numerous other vaccine campaigns.

Past studies have shown that the media often draw from pre-existing cultural symbols and themes when presenting seemingly new issues into the public domain (Jenkins, 1983). The HPV vaccine provides an illustrative example, in which key players defined their positions, using well-established arguments with which the public was already familiar. It has been found that media coverage of the HPV vaccine seemed to present arguments in favour of vaccination through promoting the health benefits and practical implications of vaccination (Fowler, Gollust, Dempsey, Lantz, & Ubel, 2012, p.183). Arguments against the vaccine were often focused on “moral and political dimensions” a commonly drawn on frame for arguments against vaccines (Fowler, Gollust, Dempsey, Lantz, & Ubel, 2012, p. 183). The controversy surrounding this vaccine, presented primarily as a moral issue, can be explained as new biotechnologies are often framed in the media as having moral concerns (Fowler, Gollust, Dempsey, Lantz, & Ubel, 2012).

It is also interesting to look at the HPV vaccine because in Canada, the vaccine was rolled out with unusual speed, as was the case with the H1N1 vaccine (Munira & Fritzen, 2007). The speed in which a vaccine is released is often seen as problematic as citizens become concerned about vaccine safety, as a belief arises that a vaccine has not been thoroughly tested. In the United States, the HPV vaccine was received differently as the main belief for its development and promotion was corporate profits (Mishra & Graham, 2012, p. 58). In Canada the vaccine was provided through a program to girls in grade 7, while in the U.S. it was initially only available outside of the school system (Comeau, 2007). This occurred due to many parents feeling that pre-adolescent immunization undermines parental roles and has the capability to influence their children's sexual behaviour as the vaccine, primarily promoted as a sexual health tool, would influence children into believing that intercourse was safe.

Some of the Canadian success with acceptance of the HPV vaccine is due to its presentation as a cancer-preventing technology. When the U.S. moved to make the HPV vaccine mandatory in 2007, there was heavy criticism and controversy due to the belief that corporate interests had taken over health policy (Mishra & Graham, 2012, p. 58)(Harber, Marlow, & Zimet, 2007)(Dickerson, Smith, & Ory, 2011). The belief was that the corporations were guiding the policy as it promised greater profits for the industry, at the expense of promoting vaccination as a matter of choice for citizens.

Research by Kelly et al. (2009) focused on individual knowledge of the HPV vaccine. They found that an individual's knowledge about both the disease and the vaccine were strongly associated with exposure to health related media content.

Goodyear-Smith et al. (2007) examined print media reporting on immunization in New

Zealand. They found that, overall, stories focusing on the adverse effects of a vaccine were reported using emotive language, and frequently described as tragic, personalized stories that often lacked hard scientific-based evidence. By contrast, stories that were supportive of vaccination were present most “in informative rather than in opinion-based articles” (Goodyear-Smith, Petousis-Harris, Vanlaar, Turner, & Ram, 2007, p. 762). This presents some appealing areas for consideration in examining how news stories for or against the H1N1 vaccine were presented.

A workshop on Vaccine Risk Communication held in 2000 by the U.S. based Institute of Medicine identified anti-vaccination discourse as a key issue of concern in public health communication (Leask J. , 2002). Leask highlights the concern that was raised, largely through the media, about the alleged link between the measles-mumps-rubella (MMR) vaccine and autism. The increase in media reports questioning the safety of the vaccine led to an increase in activity by parent lobby groups, showing a shift in public tolerance of vaccine risk. The case of the MMR vaccine raised concern from health professionals regarding news stories overstating vaccine risk as they can undermine public confidence and cause confusion and concern where it’s not warranted (Leask J. , 2002). One final issue was the link found between reporting on the safety of the vaccine and the prevalence of disease (Leask J., 2002). This link showed that horrific stories about a vaccine appeared most commonly when cases of the disease were low.

Between 1998 and 2002, claims later proved to be unfounded were made about a potential link between the MMR vaccine and autism. These claims began with a 1998 study conducted by Dr. Andrew Wakefield that was first published in *The Lancet* (Anderberg, Chevalier, & Wadsworth, 2011) and generated considerable amounts of

media coverage. This study was later widely discredited for falsification of its findings. Pareek and Pattison (2000) examined the sources of information used by British mothers in determining whether to have their children receive the MMR vaccine. The study found that mothers consulted a multitude of sources including “friends, family, health practitioners and the media” (Pareek & Pattison, 2000, p. 970).

Mason and Donnelly (2000) studied how news reports critical of the MMR vaccine influenced inoculation rates in the UK. In 1997, the *South Wales Evening Post* started a prolonged campaign against the vaccine, specifically attacking its safety. The effect of the campaign was staggering. In areas where the *Post* was distributed (Swansea, Neath, Port Talbot and Llanelli), uptake of the MMR vaccine declined by 13.6%, whereas in the rest of Wales the uptake only declined by 2.4% (Mason & Donnelly, 2000, p. 473). It is evident that the trend in uptake of the MMR vaccine is most likely related to the perceived safety of the vaccine (Anderberg, Chevalier, & Wadsworth, 2011) as no genuine problems with the vaccine in the area covered by the *Post* were found (Mason & Donnelly, 2000). The Wakefield study and its resulting media coverage have had serious long-term repercussions as in 2012 reports appeared stating that an outbreak of measles in England and Wales had reached the highest levels in 18 years (Hill, 2013). This was linked to the number of parents choosing not to have their children vaccinated during the 1998 MMR scare by *The Guardian*, as these individuals were now contracting measles as teenagers and adults. The perceived safety of the vaccine, while influenced by many factors, is strongly shaped by media reports.³

³ Most recently in Canada a link has been shown between misinformation and the uptake of the seasonal flu vaccine. As reported in the *Globe and Mail*, only 39% of Canadians

In the wake of the 1998 Wakefield study on the MMR vaccine and its side effects, anti-immunization groups started to become better organized. People were no longer simply accepting vaccines as a legitimate or safe means to prevent disease. Now, people were starting to become more concerned about the effects of vaccination than the consequences of the diseases they prevent. A 1995 Australian national survey found that 18.4 percent of parents didn't vaccinate their children against diphtheria, tetanus and pertussis (a typical and common childhood vaccine) because they were "opposed to immunization, with a further 6.6 per cent citing concern about side-effects as their reason for not vaccinating their children" (Leask & Chapman, 1998, p. 17). A more recent American survey, from 2009, found that "11.5% of parents of children 17 years and younger reported refusing at least one vaccine" (Murray, & Rothstein, 2013). The diversity of vaccines available, with vaccines being tailored to specific populations, has contributed to the public not only questioning the safety of vaccines but also the choice of vaccines used and their relevance (Larson et al., 2001, p. 528). Media coverage and celebrity activism have played significant roles in fostering both anti-vaccine advocacy groups and the anti-immunization discourse they develop. Leask and Chapman (1998) suggest that anti-immunization coverage can be enough to sway and influence parents who do not immunize their children.

Along with key figures opposing immunization, there are also key themes used by the media when discussing the risks of immunization. Leask and Chapman (1998), analyzed newspaper reports on childhood immunization in Australia over a 40-month

received the vaccine during the 2013-14 flu season. Survey research showed that the biggest reason people had for not getting their flu shot was mistrust (Picard, 2014). One third of those who chose to not get the vaccine did so because they believed that vaccines are dangerous.

period, from November 1993 to February 1997, to see if there were consistent themes in the reporting. Out of all the reports, “ninety per cent contained no references to any anti-immunization claim” and out of the 10 per cent of articles found to reference anti-immunization claims, around half were “written by or about people who were opposed to immunization” with the other half being written by or about individuals who support immunization (Leask & Chapman, 1998, p. 19). This is important, as it suggests a large portion of anti-immunization references appearing in the media coverage are present due to the framing exercises of pro-immunization advocates.

Articles that were critical of immunization were constructed around a number of themes: “cover-up”, “excavation of facts”, “alliance for profit”, “us versus them”, “vaccines as poisonous chemical cocktails” and “the causes of idiopathic ills”, totalitarianism and the theme of back to nature (Leask & Chapman, 1998, p. 18). Reports around cover-up suggest widespread conspiracy of information suppression inhibiting public knowledge of facts on vaccines. This goes hand in hand with the theme of excavation of facts, where stories, often dramatized, focus on having to unearth facts that have been hidden from the public (Leask & Chapman, 1998, p. 20). The theme of “unholy alliance” for profit focuses on governments being aligned with pharmaceutical companies to maintain product demand in the interest of profiteering (Leask & Chapman, 1998, p. 20). The theme of ‘us versus them’ referred to warnings that vaccination programs erode civil liberties (Leask & Chapman, 1998, p.21). Vaccines were mentioned in conjunction with health conditions often of uncertain origin (Kata, 2010).

The theme of totalitarianism appeared in conjunction with a National Childhood Immunization Register (Leask & Chapman, 1998). The Register sent out mailed

immunization reminders for parents. The press drew attention to the possible links between the Register and government control and invasion of privacy. Furthermore, the theme of totalitarianism arose through depictions of a ‘slippery slope’, in which the Register was not a far cry away from totalitarian states enforcing their will on citizens (Leask & Chapman, 1998, p. 21). The theme “back to nature” was mobilized in coverage describing vaccines as poisonous chemical cocktails and in which alternative natural health interventions were introduced as more effective and safer than vaccination (Leask & Chapman, 1998) (Leask & Chapman, 2002) (Kata, 2010).

Heffernan, Misturelli and Thomson (2011) conducted a textual analysis of avian influenza in the Chinese media between 2001 and 2008. They found that coverage of the avian flu in the first couple of years focused on actions being taken to control the disease, with a focus on reassurance (Heffernan, Misturelli, & Thomson, 2011). In later years, the coverage shifted to focus more on stories of uncertainty about the virus and the efficacy of the vaccine. Similarly the globalization of the disease was presented through portrayals of risk being detailed in relation to other countries. Similar themes of reassurance and blame were also present with responsibility mainly attributed to Asian countries, without mentioning China specifically (Heffernan, Misturelli, & Thomson, 2011). The newspapers were even promoting the creation of a vaccine that was being produced by Chinese researchers to help immunize animals. The authors note that this vaccine was then being stockpiled by the government, promoting the message that the Chinese government was doing all it could to actively protect its’ citizens. Furthermore, the mass creation and distribution of the vaccine produced by China was used to present themes of control over, and prevention of the influenza (Heffernan, Misturelli, & Thomson, 2011).

These themes found within in the Chinese media present the Chinese Government as taking charge of the situation.

Theories of Risk Discourse

Risks are newsworthy as they are often event driven and present cases that can be dramatized and sensationalized for the public (Fowler et al., 2012). Cases of risk discourse extend to a rather routine form of health prevention: vaccination. Within the field of social science, risk research commonly falls within two main paradigms of scholarly research, the socio-cultural and the psychometric traditions. Those that fall into the socio-cultural approach to risk focus mainly on how risks are socially constructed and deal with how citizens view the world (Lupton, 1999). Within this category is Risk Society Theory, which was discussed earlier in this thesis. The psychometric paradigm is rooted in psychology and has a focus on measuring subjective attributes, risk perception and rational behaviour (Pidgeon, Kasperson, & Slovic, 2003). The psychometric paradigm underlies some valuable knowledge towards risk, as it presents the individualized side of risk, and places a focus on risk perceptions and how they are formed. Information discovered from scholars operating under this paradigm can be applied to the findings of this study, to attempt to predict or draw conclusions about how the public was affected by the news coverage of the vaccine.

In regards to the psychometric paradigm, risk comparisons have been found to be useful for helping individuals in their decision-making about risks. One can expect that similar risks should be treated similarly (Fischhoff, 2012). For instance, prevention against the risk of diseases is often treated similarly provided a vaccine is created. A

deciding factor in whether risk comparisons work for similar risks is dependent on context (Fischhoff, 2012). The situation one finds themselves in helps them decide if a risk truly applies to them. For example, the likelihood of being struck by lightning is non-existent if one is indoors. However, if one is out golfing, then the risk is higher and some form of action is required to minimize the risk.

Situation factors are used in estimating risk. Frequency of an act, the timing and location can all impact a person's risk perception (Fischhoff, 2012, p. 15). Estimations of risk can also be heavily influenced by interpretation of information. Ambiguous communications about risk by experts leave non-experts guessing what the real facts are behind a risk (Fischhoff, 2012, p.15). For example, the statement that “only minor side effects have been found in connection with the vaccine” is ambiguous about what minor side effects are, and leaves individuals to decide for themselves what these may be. The issue of ambiguities can be overcome through supplying details and definitions of meanings (Fischhoff, 2012). Furthermore, an optimism bias tends to occur consistently in cases where individuals perceive some form of control over a risk (Fischhoff, 2012, p.16). This conviction of control is driven by the belief of individuals that they are facing less risk, caused when individuals are informed about risks to others, and not themselves.

A key insight of the psychometric paradigm is that individuals are often willing to go to great lengths to reduce risk. In research on personal feelings and attitudes towards cancer-causing chemicals, Slovic discovered that more than 50% of individuals surveyed feel that there is no safe level of exposure to carcinogens (Slovic, 1998, p. 439). Slovic outlines one important factor towards fear of chemicals, specifically carcinogenic ones, is the assumption of “low-dose linearity” found in quantitative risk assessments by

individuals. The linear model used in quantitative analysis of chemicals on animals producing results of cancer, leads to an understanding that cancer is likely also to occur in humans. Even the small probabilities of contracting cancer seem large enough to the public, and frightens them (Slovic, 1998, p.439-40). This can lead to a perception of the need to reduce risk from carcinogens at all cost. One final aspect Slovic notes behind risk to chemicals is the “psychological tendency to confound perception of risk with perception of benefit” (1998, p.440). If individuals perceive some benefit to a risk substance or activity they are more likely to perceive it as less risky. This is also connected to pleasure, as individuals are more likely to take a risk, if the pleasure perceived overrides their belief of personal risk.

Risk perception is a major area of focus within the psychometric paradigm. Risk perception refers to “the judgments about risks individuals make in the face of threats, both individual, and social or collective in nature” (Costa-Front, Mossialos, & Rudisill, 2009, p. 27). Individuals construct their perceptions of risk using “simplifying heuristics” (Costa-Front, Mossialos, & Rudisill, 2009, p.27). This means that individuals employ a variety of biases in creating their perception of risk in order to make up for lack of information. In health-related settings, an individual will view a risk through the lens of an optimism bias when they believe the risk applies more to others, than themselves (Costa-Front, Mossialos, & Rudisill, 2009, p.29). This leads to the potential for individuals to not take preventative measures against a health related risk, if they feel they are not likely to suffer from the health issue.

Costa-Front, Mossialos and Rudisill (2009) look into how “socially driven optimism” can impact an individual’s perception of a risk they themselves are facing, and

of a risk faced by society (p.28). An optimism bias exists when individuals underestimate a risk to themselves. ‘Socially driven optimism’ is “how a specific bias can impact the perception of risk by which individuals perceiving risks they face themselves and risks that impact society with different intensities” (Costa-Front, Mossialos, & Rudisill, 2009, p. 28). For risks where more benefit is perceived, such as cell phone use, there is a greater optimism bias. Risks that affect society more than the individual, such as climate change, were found to have smaller optimism biases (Costa-Front, Mossialos, & Rudisill, 2009, p. 38). Optimism towards risks, especially new risks, is important as it can allow individuals to be more open towards accepting solutions and new ideas.

Other scholars focusing on risk and health promotion utilize the Health Belief Model. This behavioural model represents human actions as volitional and rational (Lupton, 1999). Risk avoidance is often labeled as rational, while risk-taking is labeled as irrational (Bloor M. , 1995). An individual must form and hold a number of perceptions, or beliefs, about a risk before they will be willing to take action against it. These include: the belief that “they are vulnerable to the threat, they must perceive the threat as having serious consequences, they must believe that taking preventive action will be effective and they must believe that the benefits of that action will outweigh the costs” (Lupton, 1999, p.21). This assumes a linear model that information directly drives action.

Other research by Downs et al. (2012) involved 30 in-depth mental model interviews with parents discussing the MMR vaccine for their children. “The interview protocol had two segments: *mental models*, assessing beliefs about vaccination, and *communication assessment*, measuring trust in communications designed with different informational properties” (Downs, Bruine de Bruin, & Fischhoff, 2012, p. 265). Research

participants were American parents with children between the ages of 18 and 23 months. In terms of knowledge, 24/30 participants stated that they first learned about the MMR vaccine from their physicians (Downs, Bruine de Bruin, & Fischhoff, 2012, p. 269). The researchers further classified parents into two categories based on their vaccine knowledge. This first category, where 16 individuals fell, was “naïve understanding”, where individuals mentioned a link between disease and vaccine but none of the underlying mechanisms. The second category, with 14 individuals, was classified as “focused understanding” (Downs, Bruine de Bruin, & Fischhoff, 2012, pp. 271-72). These parents could explain links between disease prevention and vaccination. Furthermore, they tended to make more comments about immunity and herd immunity.

Specific clusters of topics found to be of significance for parents within this study show that disease prevention held greater significance than risk, personal values, or information (Downs, Bruine de Bruin, & Fischhoff, 2012). Both groups mentioned above, the “focused understanding” and “naïve understanding” parents, talked “the most about *benefits* of vaccines, the need to *identify reactions* [to vaccines], the impact of vaccination on *disease prevention* and *health*, and how *screening* decisions are made and implemented” (Downs, Bruine de Bruin, & Fischhoff, 2012, p. 274). A further division within the 30 participants was found; 16 had a focus on “health-oriented” aspects of vaccination, and the other 14 focused on “risk-oriented issues” (Downs, Bruine de Bruin, & Fischhoff, 2012, p. 274). The health-oriented parents had more trust for anecdotal communication than statistical communication, whereas risk-oriented parents trusted statistical arguments more. These findings suggest that there might be two general groupings of parents that gain knowledge best through different communication styles.

This reaffirms the need for media and health communications to present information in a multitude of ways. One final noteworthy conclusion from this study was that most parents were favourable towards immunization. However, a number of them had limited understanding that leaves them open to being misled through faulty information.

The studies discussed above provide a valuable context for considering risk perceptions of the H1N1 vaccine and the role of news media in shaping how those perceptions may be formed. The information provided presents a starting point for this research, to see how risk and the H1N1 vaccine were portrayed. It allows for an understanding of how past vaccines have been discussed in the media, presenting themes seen in the past, and how risk, and its presentation, can impact and influence citizens.

Theoretical Framework

This study takes media coverage of the H1N1 vaccine as its object of analysis, and the potential effects of media coverage on public attitudes and beliefs about vaccination as its central concern. The main focus of this section will rest on articulating a theoretical framework that draws broadly on the media effects traditions of agenda-setting and framing. These complementary approaches deal with questions of how news is constructed, the characteristics that make some events and issues more newsworthy than others, and how it influences and shapes public attitudes and beliefs.

Agenda-Setting

Agenda-setting “refers to the idea that there is a strong correlation between the emphasis that the mass media place on certain issues and the importance attributed to these issues by mass audiences” (Scheufele & Tewksbury, 2007, p.11). It serves to define problems that are worthy of attention, not just public attention, but also government attention (Entman, 2007). An agenda is defined as a ranking, based on relative importance of issues, of certain issues that can vary in their salience when compared to other issues (Dearing, 1989). In other words, it asks how are certain kinds of information made “more noticeable, meaningful, or memorable to audiences” (Entman, 1993, p. 53)?

The two main components of agenda-setting are issues and events (Soroka, 2002). Shaw (1997) suggests that an event should be defined as “discrete happenings that are limited by space and time” (p.7). An event can be thought of as an occurrence of a larger issue. An issue is defined as a broader category that encompasses numerous events and

the claims and accounts made of them, often in the forms of news stories. For example a news report of a gang related murder is an event – it can be perceived as one event that is part of the larger issue of gang related violence. Similarly, a case of food poisoning caused by ingestion of spoiled meat at a fast food restaurant chain is an event that is part of the broader issue of food safety. Issues can also be perceived as problems, which are usually, but not always, conflictual, and which receive attention in the media (Soroka, 2002). Seen in this way, agendas are conceptualized as the ranking of issues. Considered together, events are reported in the media and become component parts of larger issues. The more events about an issue that are reported, the more salient a certain topic can become, placing it higher on the agenda for attention and concern.

Framing

Framing, at the most basic level, is concerned with the connection between issue representation and audience attention and understanding (Scheufele & Tewksbury, 2007). It essentially entails the dual processes of selection and salience: as Entman (1993) explains, framing involves selection of what frame, or aspect of perceived reality, is to be used to explain an issue, and journalist's attempts to make them more salient for the readers or audience. The aim of making issues more salient through the use of specific frames is to promote a specific problem definition, moral value or evaluation, and opinion of needed actions (Entman, 1993).

Frames are commonly relied upon by the mass media to help them organize how a message is presented. The importance of frames, and the media's reliance on them, stems from their ability to act as a bridge between elite discourse on issues and popular

comprehension of that issue (Nelson, Oxely, & Clawson, 1997, p. 224). The analysis of frames, for Entman (1993), is useful as it “illuminates the precise way in which influence over human consciousness is exerted by the transfer (or communication) of information from one location – such as speech, utterance, news report, or novel – to that consciousness” (pp.51-52).

Framing is conceptualized as both a macroconstruct and microconstruct. As a macroconstruct, framing refers to the modes, or way of presentation, that journalists, policy makers and other key actors, use to present their stories, or advance their issues of concern, in particular ways that are intended to resonate with underlying beliefs, and schemas of the audience they are seeking to address (Scheufele & Tewksbury, 2007). As a microconstruct, framing describes how individuals use information and different presentation methods to help form specific impressions in their own minds (Scheufele & Tewksbury, 2007). To simplify, “framing may be studied as a strategy of constructing and processing news discourse or as a characteristic of the discourse itself” (Carragee & Roefs, 2004).

Similarly, framing can be broken down into two concepts, media frames and individual frames (Scheufele, 1999). Gamson and Modigliani (1989) define media frames as one method for organizing the world, for both journalists and their readers. A frame is used to represent the controversy, or essence, of an issue. More importantly, media frames “also serve as working routines for journalists that allow the journalists to quickly identify and classify information”, packaging it more efficiently for their audience (Scheufele, 1999, p. 106). For example, journalists tend to rely on the ‘war on drugs’ frame for illicit drug stories. Individual frames are those ideas and schemas people hold

that they call on to help make decisions and process information (Scheufele, 1999).

Individual frames can be short term – frames that are related to specific issues – or long term frames, usually connected to political or global views.

Framing focuses on four main functions or tasks: “problem definition, casual analysis, moral judgments, and remedy promotion” (Entman, 1993; 2007, p. 164). The first is to define problems, and what agent is doing what about it, at what cost and benefit (Entman, 1993, p. 52). The second function is to diagnose causes. This involves identifying the forces that give rise to a problem. The third function is to impart a moral judgment through evaluation of individuals involved and the effects their actions can have. The final function is the suggestion and justification of specific remedies (Entman, 1993, p.52). This occurs through the media framing particular treatments of methods of solving the issue, and the potential effects of these treatments.

The audience is a key component of framing, as it is for them that issues are being packaged and presented. The likelihood of an issue becoming more salient than others, in part, rests on the attention that readers pay to the news story (Scheufele & Tewksbury, 2007). The more attention readers pay to a story the more salient it is likely to become. The strength of a frame on an individual can also be influenced by past connection to similar issues, or a past connection to the frame being used (Scheufele & Tewksbury, 2007). The media actively select frames or reference for their readers, to provide them with an easier way to interpret and further discuss issues and public events (Scheufele, 1999). The effect of media frames on individuals’ cognition, emotions, and behaviours depends upon the type, volume, and completeness of the media frames, of an issue (Kepplinger, Geiss, & Siebert, 2012, p.662). However, frame reception (i.e., what any

one person or group thinks about an issue) does not necessarily reflect the frame set in the media. Similarly, how certain frames affect one individual is not necessarily the same effect it will have on another individual. This is because media frames are only part of the process of meaning construction; the other part of the process are individuals “pre-existing meaning structures or schemas” (Scheufele, 1999, p.105). Therefore, since individuals have built up their own schemas, derived from their culture, personal histories and beliefs, how a frame resonates with an individual varies according to a number of different factors and criteria.

Journalists play a key role in media framing. Framing is one way for journalists to highlight certain features of an issue, which in return tends to minimize attention to other issues (Shih, Wijaya, & Brossard, 2008). However, journalists are not the sole individuals behind framing issues, as they are impacted themselves by “socio-structural or organizational variables and by individual or ideological variables” (Scheufele, 1999, p.107). Journalistic frames are open to the influence of frames that have been sponsored by multiple actors (Carragee & Roefs, 2004). Journalists are also influenced by the information that is available to them. That is to say, the press releases from which they receive their information, and their heavy reliance on sources, also shape frame construction. Journalists commonly draw on the ideas and language that arise from other forums, heavily referencing other sources in their articles (Gamson & Modigliani, 1989). It is through “framing that political actors shape the texts that influence or prime the agendas and considerations that people think about” (Entman, 2007, p. 165).

Structural practices of journalism impact and shape the texts that prime agendas. Ownership patterns, newsgathering resources, and time pressure are a few of the issues

impacting news construction. For Gans (2004) “journalists are essential in many ways to the survival of democracy” and it is because of this that many different kinds of sources (political elites, advocacy groups, think tanks, etc.) “seek control of the news media” (Gans, 2005, pp. 10-11). Journalists are often stuck relying on politicians and public officials as they frequently produce newsworthy events or comments. This results in journalists providing what might be described as a top-down report (articles on what high-level officials want released to the public). Gans also argues that there has been an increasing number of soft news stories, which can be connected back to the start of newspapers in America: “The news media are first and foremost an assembler of audiences for the advertisers who help provide profits for commercial news firms” (p. 12). News work is also conditioned by time and commercial pressure, as deadlines and market competitiveness keep “them so busy that they rarely ask whether the information they supply is what an informed citizenry needs” (Gans, 2004, p. 10). Indeed, as Fishman (1980) argues, only a few public bureaucracies are used by journalists on a consistent basis, specifically the ones that can provide the quantity of materials needed and in a manner that can be easily packaged for news. This is significant as the schemas provided to journalists from their bureaucratic sources are usually modified, and adopted into journalists reports, furthering the desired frame of the bureaucrat.

As noted above, journalists are not immune to outside influences that effect how they frame their messages. “Elites, presumably care about what people think because they want them to behave in certain ways, supporting or at least tolerating elite activities” (Entman, 2007, p. 265). The media is one venue through which elites and other sources attempt to steer preferred behaviour on the part of the public broadly, or of key segments

of the public in particular. In fact political elites often “devote considerable efforts towards influencing not only what information gets on the air but how it is presented” (Nelson, Oxley & Clawson, 1997, p. 237). Importantly, this kind of activity is not limited to elites alone. Organizations that are comparatively disadvantaged relative to corporate and political elites in their relationship with the media have also demonstrated an interest in shaping public and policy agendas through their media activities (e.g. Greenberg, May & Elliott 2005). Success for these groups comes

after addressing a number of important barriers and constraints, such as commercial interests and orientations of mainstream mass media, the journalistic routines and news norms that determine what and who are newsworthy, the competition among different voluntary advocacy groups for publicity and public support, and the propensity of news media to report about events rather than issues (Greenberg, May & Elliott, 2005, p.132).

Due to the efforts of organizations using the media to influence opinions and behaviours of citizens, Entman (1989) suggests that “it may be more realistic to think of the media as contributing to – but not controlling – the structure of publicly-available information that shapes the way people can and do think politically” (p. 366).

Druckman (2001a, 2001b) focuses on analyzing framing effects and what the implications of these effects are for citizen competence. Druckman (2001a) suggests that policy makers and other key political actors are now facing new constraints in their ability to use frames to influence public opinion. He claims this is largely due to systematic constraints that decision-makers face. “A framing effect occurs when two logically equivalent statements of a problem lead decision makers to choose different opinions” (Druckman, 2001a, p. 1042). It can also occur when elites place particular emphasis on certain considerations about an event, which leads individuals to focus on

those considerations in their decision making process. This effect works on individuals psychologically through influencing their thoughts and beliefs about the importance of varying aspects of an issue or event. Druckman (2001a) suggests that framing effects “may occur because citizens delegate to ostensibly credible elites to help them sort through many possible frames” (p. 1045). Yet, at the same time, for a framing effect to ‘work’ (i.e. to actually have an effect), citizens need to trust the source of information and, more importantly, view them as credible (Druckman, 2001a, p. 1053).

Aspects of Newsworthiness

Another important consideration for this thesis is measures or indicators of newsworthiness. Tukachinsky (2013) contrasts and compares two media analyses to explore the elements of what makes a particular story newsworthy. This article discusses the 12 newsworthy criteria as laid out in the classic essay by Galtung and Ruge (1965), and a newer content analysis by Harcup and O’Neill (2001), that discovered 10 categories for newsworthiness. The 12 newsworthy categories from the 1965 study are:

“frequency (i.e. specific occurrence rather than a long-term trend); threshold (events should reach a certain level of intensity to be noticed, and the more intense the more likely the event to become news); unambiguity; meaningfulness; consonance (fitting expectations); unexpectedness (the most surprising of all plausible/ likely events); continuity (follow-up stories); composition (balancing the overall composition of news stories in a given issue/ broadcast); reference to elite persons; reference to elite people, personalization; and negativity (Tukachinsky, 2013, p. 147; Galtung & Ruge, 1965).

The more recent study by Harcup and O’Neill discovered only 10 categories, which were: power elite; celebrity; entertainment; surprise; bad news; good news; magnitude, sufficiently significant stories; relevance; follow-up, “stories about subjects already in the

news”; and newspaper agenda, “stories that set or fit the news organizations own agenda” (Harcup & O’Neill, 2001, p.79).

Tukachinsky (2013) in her analysis of both studies discovered that there is a great deal of overlap in the categories for newsworthiness. For instance, she argues that negativity and unexpectedness are the same as bad news and surprise. Harcup and O’Neill merged the categories of elite persons and elite people into one category, they called power elites. However, Tukachinsky notes that each of these studies has a few distinct categories, offering unique criteria. For example, Harcup and O’Neill list positive news and newspaper agenda as categories of newsworthiness, which have no equivalent in Galtung and Ruge’s categories. Galtung and Ruge suggest the categories of composition and consonance for newsworthiness, which are unique to their framework.

Tukachinsky finished off her discussion of the different typologies of newsworthiness by mentioning that the two studies noted above, can be mapped onto yet another study of newsworthiness. Shoemaker and Reese (1996) establish the categories of: “prominence, human interest, conflict, oddity/unusual, timeliness and proximity” (Tukachinsky, 2013, p. 147). For Tukachinsky, the category of oddity is similar to surprise and unexpectedness, the category of human interest is equivalent to negativity, bad/good news, celebrities, personalization, elite persons and entertainment, and timeliness and proximity are subcomponents of relevancy and meaningfulness (p.147). The ability of these typologies to map onto each other suggests that the categories listed in these studies are complementary, and taken together provide us with relatively accurate barometers of newsworthiness. Finally, the more categories of newsworthiness a story can match, the more likely the story is to be reported.

Encoding/Decoding

To fill out this chapter, Stuart Hall's (2001) discussion of encoding/decoding will be considered. Hall (2001) suggests a four-stage model of communication, in which "each stage is relatively autonomous from the others" (p. 507) and has its own limits. The four stages to this model are production, circulation, use and reproduction. Production involves the "apparatuses, relations, and practices of production" (Hall, 2006, p. 163). In the production phase the "product" (i.e. news report) gets articulated, and acquires meaning and its own set of social relations (Hall, 2006, p. 163). This is where a message becomes encoded, with the production of the message involving the use of societies values and beliefs in its construction.

The second stage of the model is circulation. "It is in the discursive form that the circulation of the product takes place, as well as its distribution to different audiences" (Hall, 2006, p. 164). In the circulation stage messages are disseminated to the audience, and how this occurs can impact how audiences receive a message. For example, a message disseminated by a popular influential celebrity, compared to a person of no recognition, can mean the difference between citizens actually listening and taking in the message, or ignoring it. Audiences are influenced differently depending on the visual, textual and oral messages provided. The circle of production is completed and effective when the discourse is "translated/ transformed, again into social practices" (Hall, 2006, p. 164).

The third stage to Hall's model is use. Use refers to the message being consumed or distributed. In order for an encoded message to be used by the audience, the audience

has to obtain some kind of meaning from it. The “discursive form of the message has a privileged position in the communicative exchange, and the moments of “encoding” and “decoding”, though only “relatively autonomous” in relation to the communicative process as a whole, are determinant moments” (Hall, 2006, p. 164). An event in this circuit, takes the place of a discursive message, so that it can be passed along to the audience (receiver). It is in this stage where the audience using the message and gleaming meaning from it, interpret the message that is being circulated to them. The moment of decoding thus depends on the audience’s myriad of experiences, beliefs and ideologies. This explains why encoded messages are not always decoded consistently within and among different individuals and audience.

The final stage in Hall’s four-stage model of communication is reproduction. A discursive message, once interpreted by the audience, can produce action, and this is where the reproduction of the message can be seen (Hall, 2001). This cycle is completed when the original encoded message, after being decoded, becomes reproduced, under the new meaning taken from the receivers decoding of the original message. For example, if the message being delivered is that citizens should receive their flu shot, and an individual decodes this message to mean just that, they can reproduce this message in discussions with friends – passing it along. It can also result in them receiving the message, and acting on it by getting vaccinated. This completes the cycle and can further a discursive message. Again the message is framed throughout by “meaning and ideas, knowledge-in-use concerning the routines of production, historically defined technical skills, professional ideologies, institutional knowledge, definition and assumptions, assumptions about the audience and so on” (Hall, 2006, p.164).

Hall (2006) argues that there are essentially three ways in which an audience can receive a message – dominant/ hegemonic, negotiated, or oppositional. A dominant or hegemonic understanding of the message occurs when “the viewer takes the connoted meaning from say, a TV newscast ... full and straight, and decodes the message in terms of the reference code in which it has been encoded” (Hall, 2006, p. 171). In other words, the audience or receiver of the encoded message has decoded it how the encoder of the message desired. For example, the statement that the vaccine is “safe, and advisable” (Medina, 2009), is read for its preferred meaning when the reader understands it to mean, literally, that the vaccine is safe and they should feel comfortable having it injected into their own bodies. A negotiated reading of the encoded message occurs when adaptive and oppositional elements are combined. A negotiated reading occurs when the reader understands the dominant or hegemonic meaning of the text, but they use their own situational factors to alter the understanding – they are negotiating their decoding of the message. To illustrate, a reader may understand that the vaccine is safe, but may choose not to take the vaccine if that understanding conflicts with other views, such as concerns about taking time away from work to line up for the vaccine, or concerns about the power that big pharmaceutical corporations have over the state’s public health apparatus. Finally an oppositional decoding of the encoded message occurs when “events which are normally signified are decoded in a negotiated way, begin to be given an oppositional reading” (Hall, 2006, p. 173). Therefore the receiver of the message understands the dominant message in the opposite way it was intended. In the case of the previously provided example, an oppositional reading would refer to someone who does not believe

in vaccines, due to their belief that they are dangerous and not safe, and may both refuse inoculation or advocate publicly against it.

Halls encoding/decoding four-stage cycle of communication has been included in this analysis as it provides a cultural framework that complements the rather more instrumental focus of framing and agenda-setting theory. Hall's model recognizes and helps to explain how a message is given a specific meaning, (how it is framed) and how through the processes of communication, it can be shifted to provide three types of understanding, or readings. This helps provided a further understanding of how frames in the media influence individuals differently; through their own beliefs and schemas the dominant message or frame can also be negotiated or opposed, resulting in the dominant message not being picked-up.

The following chapter will discuss the method for addressing and answering the research questions, laid out in the thesis focus and organization, that have been derived from the theories of 'risk society', agenda-setting and framing, and encoding/decoding, and reflecting the literature around vaccines in the media.

CHAPTER 2 Study Design and Methods

This study examines newspaper coverage of the H1N1 vaccine in Canada and the U.S. focusing on the *Globe and Mail* (GM) and *New York Times* (NYT). The GM was chosen because it has the largest average circulation for a Canadian national daily newspaper, with an average of 317,723 newspapers sold daily (Newspapers Canada, 2012). While the NYT is not the top circulating daily newspaper in the United States, it is within the top five, with an average daily circulation in the U.S. of 1, 586,757 (including digital subscriptions) (Vega, 2012, p.1), and is an agenda-setting newspaper with a strong influence over both elite policymakers and public opinion (Bercovici, 2011). More importantly, the *New York Times* has one of the largest online readerships in the world (ComScore, 2012; Oremus, 2012).

The analysis was carried out in two stages: the first stage of the study involved a quantitative content analysis of articles from both newspapers to allow for descriptive and uni-variate statistics to explain general trends and patterns found across the coverage. Quantitative content analysis focuses on the big picture and is “well suited to dealing with the massness of the mass media” (Deacon et al, 1999, p. 117). Quantitative analysis was used in the first stage of the research to “quantify salient and manifest features of a large number of texts, and the statistics are used to make broader inferences about the processes and politics of representation” (Deacon et al., 1999, p. 116). For the second stage of this study I conducted a closer reading of the articles to better understand the thematic framing of the vaccine issue. Both methods were chosen as the weaknesses of one method can be complemented by the strengths of the other; when combined, this mixed methods approach ultimately makes the research stronger (Deacon et al., 1999).

The weakness of quantitative content analysis is that by analyzing aggregated meaning across a large volume of texts it is not well suited to answering ‘deep’ questions about interpretation or meaning. Qualitative thematic analysis is well suited to answering such questions, as it aims to go past the surface of texts, to their latent meanings.

Stage One: Quantitative Method

Quantitative analysis was carried out to gain insight into how both newspapers (NYT and GM) framed the H1N1 vaccine, and to determine whether there was evidence of a media agenda. Content analysis allows for a “systematic, reliable, and rigorous” treatment of the data (Trimble & Treiberg, 2011, p. 213). Specifically, quantitative analysis allows the researcher to measure frequencies in how certain issues, events, and actors have been covered (Archer & Berdahl, 2011) as a means for determining saliency. Aspects of the data that were analyzed in the content analysis included: base information about the articles, such as word count, location in the paper, and types of article; primary, secondary and tertiary areas of focus; and prominent voices that were selected and established the main frames and emphasis of the coverage. This allows for the identification of whether certain frames and sources were able to dominate the coverage and establish a ‘preferred’ meaning over the texts.

Newspaper articles from the *New York Times* were chosen through a search on the newspaper database *Factiva*, using the keywords H1N1/Influenza A/ swine flu and vaccine/vaccination. The search was limited to the time period July-December 2009 as this coincides with when the H1N1 vaccine debate was most intense. To narrow the parameters of the search, duplicate articles were omitted from the final sample for

analysis. Furthermore, only articles that focused on the vaccine were used. Vaccine-focused stories were those that emphasized the H1N1 vaccine as their central topic, above any other, including the disease itself. The industries category on *Factiva* offers a method of categorization, that orders articles into the industry they are most associated with (Dow Jones, 2009, p. p.18). In this case vaccine was selected to guarantee that the articles primary focus was on the vaccine, not the disease itself. A preliminary search returned 32 articles matching the search criteria, however one article was later omitted as its primary focus was found to be the seasonal flu vaccine, not the H1N1 vaccine. This left a final sample of 31 articles, accounting for approximately 15% of all H1N1 stories in the *New York Times*.

The same search parameters and database were used to retrieve articles from the *Globe and Mail*. Through omitting duplicates and selecting articles on the vaccine from the industry category, 40 articles were selected for analysis. Within this sampling, seven articles were found to be very similar to other articles within the list. This occurred as *Factiva* counted breaking news releases separately from published articles in the daily paper. The published articles were selected, and the breaking news articles omitted to avoid duplication and prevent against over-representations of certain voices and frames. After cleaning the initial sample, a final sample of 33 articles was used, also accounting for around 15% of all H1N1 coverage in the *Globe and Mail*.

The first aspect of these articles that was measured through content analysis was the structural feature of the articles. This involved coding for the type of story, the headline of the story, the word length, section (if given) and date. The type of stories coded for were: editorials, op-ed articles, and hard news stories. Editorials voice the

opinion of the media outlet, usually on issues of high public importance. Op-ed articles are opinion pieces usually written by and expressing the view of one individual working at the media outlet. Opinion pieces are often blame oriented, taking one side over another and connect to individuals' ideologies, commonly through emotional appeals. They also are used to offer up solutions that are currently not being followed, to real world issues. Hard news stories are the most common type found in media outlets, and are supposed to be free from bias. They function to provide information and facts to citizens on current events, which are often framed and reflective of dominant interests (see Greenberg, 2000).

The coverage was also examined to mine its substantive features, i.e. its central focus. Here the primary goal was to identify the manifest content (Trimble & Treiberg, 2011). In this aspect of the coding, the unit of analysis was the foci of the newspaper articles on the H1N1 vaccine. The foci of the stories was premised on discovering the key topics, or focal points, reported in the articles, as the themes derived from these topics is the aim of the qualitative study. The foci were coded by analyzing each article for its primary, secondary, and tertiary focus. However, if an additional focus was found it was also coded.

The foci were determined after conducting a close reading of the texts and with a view to the broader themes that have been identified in other studies of vaccine media coverage. The operational definitions of the foci found within the articles, and used in the coding process are discussed briefly in chapter 3 and more in-depth in appendix H (Archer & Berdahl, 2011). Once the preliminary list was created the articles were analyzed a second time to determine their primary, secondary and tertiary topics.

Decisions about which focus fell under which category (primary, secondary, or tertiary) were based on the salience of each focus. Salience was measured by the following criteria: the length given to each focus, the placement of it (lead paragraph or buried at the end of the article) and the theme represented in the headline (van Dijk, 1985).

Finally, the news coverage was examined for the presence of news sources. Sources counted were any voice other than the newspaper, or author of the article. For editorials sources were counted as any voice other than the newspapers'. For op-ed articles, news sources were counted as any voice other than the author. Sources were coded for the voice (name), types of voice (medical practitioners, public health organizations, elected government officials, vaccine manufacturers, laypersons and others) what they were quoted for (commenting on), length of the quote in words, and how the voice was cited (whether direct quote or paraphrase). Source categories are defined in Appendix I.

Once the sources were coded, a list of voices could be found. This meant primary definers, oppositional definers, and additional voices could be analyzed. Primary definers are those sourced in the media that are placed in an advantaged role to define the situation; usually these privileged voices come from authoritarian figures (Cottle, 2003, p. 33). Oppositional definers are those positioned as providing a competing perspective to the primary definers (Anderson, Peterson, & David, 2005)(Hackett, 2005). Additional voices belong to sources that do not fit into either of the two previously mentioned categories. For instance, a layperson may be used to comment on the H1N1 situation, positioning them self with the primary definers, but not holding the same status or authority of primary definers.

Stage Two: Thematic Analysis

The second stage of the research was a more focused examination of the H1N1 vaccine discourse with an emphasis on thematic dimensions. Thematic analysis is a process that is best used with another method to allow for a further translation of the data (Boyatzis, 1998). In this project a theme refers to “a pattern found in the information that at minimum describes and organizes the possible observation and at maximum interprets aspects of the phenomenon” (Boyatzis, 1998, p. 4).

Thematic analysis allows for patterns to be recognized and for themes to be discovered and further analyzed (Fereday & Muir-Cochrane, 2006, p. 4). By examining newspaper articles on the H1N1 vaccine and themes associated with it, insight is gained about how audiences might interpret the text and make sense of the phenomenon in question (McKee, 2003). A thematic analysis will permit exploration of data and a rich detailed explanation of texts that quantitative analysis does not provide (Attride-Stirling, 2001) (Castro, Kellison, Boyd, & Lopak, 2010). The main purpose of this approach is to theorize about the contexts and conditions of reception.

The first step of the qualitative thematic analysis involved defining the sample. As the total number of articles used for the quantitative analysis (64) was of a manageable size, all articles were selected. The population of news items was analyzed for reoccurring themes. As Braun and Clarke argue, “a theme captures something important about the data in relation to the research questions and represents some level of patterned response or meaning within the data” (2006, p. 82). The primary patterns being searched

for were meanings or intentions behind the sentences in the articles, not simply the primary topics.

For the purpose of this study an inductive approach was taken. Inductive analysis refers to a process of coding data and finding themes through the data (Boyatzis, 1998, p. vii). It is a data driven method, and not theoretically driven (Braun & Clarke, 2006). Frames or themes were drawn from the articles following close and repeated readings of the texts.

A close reading of a subset of *Globe and Mail* and *New York Times* reportage was initially carried out to establish a preliminary set of themes for the analysis. Following the method laid out by Braun and Clarke (2006) these articles were coded “for as many potential themes/patterns as possible” and each unit of analysis was coded inclusively (p.89). Following a discovery of basic themes, a second reading of the newspaper articles was carried out to retest the discovered themes, and to check that themes were not missed in the initial reading. After this, the analysis moved towards a more interpretative approach, whereby the significance of the patterns and themes found were examined in relation to the broader concepts and meanings found within the data and applied to the theory (Braun & Clarke, 2006, p. 84) (Patton, 1990).

Themes found within the data were analyzed at primarily the latent level, as manifest meaning was the aim of the first stage of data analysis. Latent meaning, or interpretative meaning, refers to identifying or examining the “underlying ideas, assumptions, and conceptualizations—and ideologies—that are theorized as shaping or informing the semantic content of the data” (Braun & Clarke, 2006, p. 84). Moreover,

this type of analysis is valuable to the extent that it provides a mapping of the field of intelligibility that conditions the possibilities of audience reception (Greenberg, 2009). While the manifest level of the data was read and coded, the latent meaning behind the manifest content is what is trying to be understood (Joffe & Yardley, 2004). Therefore, the focus of the discovery of themes rests on identifying manifest themes within the data that are later analyzed and discussed for their latent meaning.

The final step of the analysis was testing the reliability of the themes. Reliability was tested by carrying out a test-retest reliability strategy as it can be performed by one individual and is useful for independent studies that lack access to a group of researchers. This reliability test was carried out by applying the same codes “to the same piece of text, on two occasions separated by a week or so” (Joffe & Yardley, 2004, p. 62). By retesting the codes, ensuring their accuracy, it helps uphold the reliability of the findings. A further explanation of themes found within this study will be explained in the following sections.

Chapter 3 Research Findings

The findings from the quantitative and qualitative analysis are presented in two sections. The first section reports the results of the content analysis: the amount of coverage, type of coverage, prominence, size, issue of focus and distribution of news sources. The second section presents the findings from the qualitative analysis, discussing the major themes that emerged in the vaccine coverage reported. The objective is to explore how, and what themes exist in the newspaper coverage of the vaccine, aiding in understanding how the vaccine was framed. This will include a discussion of how themes are constructed consistently across both newspapers and where the coverage diverges.

The Type of News Coverage

The greatest volume of newspaper coverage of the H1N1 vaccine in both papers occurred between September-November (See Appendix A). The *New York Times* printed 7 articles on the vaccine in September, 10 in October, and 6 in November, accounting for 74% of all vaccine coverage in the NYT during the sampling period. Similarly, the *Globe and Mail* printed 5 articles in September, 11 in October, and 8 in November accounting for 73% of all coverage. This concentration of reports is attributed to the period of vaccine trial completion and the roll-out of the vaccination campaign in both countries. In Canada, the vaccine had an expected release date of November, however it ended up being released earlier, at the end of October. The months of September, October and November are when vaccine trials were occurring in other countries, when distribution and manufacturing issues around the vaccine were emerging, and when governments were establishing their vaccination plans, including the opening of clinics. The high

volume of coverage in these three months reflects the increased health promotion campaigns by public health agencies in both countries (Schnirring, 2010; PHAC, 2010).

The next aspect of the newspaper coverage analyzed was the length and type of articles (See Appendix F). Both newspapers published a combination of hard news articles, editorials, op-eds and columns dealing with the vaccine issue. For the *New York Times* the greatest amount of coverage was news articles, with 26 out of 31 articles being news items. The majority of these (19/26), fell between 500 and 1500 words. The GM also mostly printed news pieces, with 29 out of 33 articles being news items. The bulk of these (17) were 500-1000 words in length. That the majority of articles published were hard news stories suggests that the vaccine was reported unproblematically, with a stronger emphasis on the “self evident” reasons for vaccination at the expense of focusing on more value-centered framing, which is typically the preserve of editorials, columns and op-eds (see Greenberg, 2000). This is somewhat more surprising – given the controversial nature of this particular vaccine, let alone debates about vaccination in general, one may have expected a larger volume of “opinion discourse” on this issue.

While both papers published mostly news stories, there were a few editorial and opinion pieces that focused on the vaccine. The NYT printed three opinion pieces whereas the GM published only one. The one opinion piece in the GM discusses the importance of vaccination, and frames the threat posed by H1N1 in comparison to smallpox (Bliss, 2009). The rhetorical objective of the author is to draw on the past success of the smallpox vaccine, and to highlight the vaccine success story in campaigns to eradicate global diseases. The opinion pieces from the NYT focused on issues pertaining to logistics and transparency, both to engender greater trust and uptake in the

vaccination campaign. One emphasized the accessibility of vaccination stations, and suggested a plan that could allow more individuals to be vaccinated, more efficiently (Shenson, 2009). The second opinion piece questioned whether women need to receive the same size dose of the vaccine as men, given that women produce more anti-bodies than men do, and focused on the importance of ensuring the vaccination distribution campaign operates smoothly and efficiently (Klein & Greenberger, 2009). The final piece discussed the vaccination plans of the U.S. government, suggesting they provide greater information to the public on the risks around H1N1 and the vaccine, so that unwarranted controversy about the vaccine could be formally addressed (Allen, 2009).

The final type of article examined was editorials. During the period of analysis the *Globe and Mail* published 3 editorials relating explicitly to the vaccine compared to only 2 in the *New York Times*. The first GM editorial offered a commentary about the slowness of Canada's testing and roll-out of the vaccine (The Globe and Mail, 2009e). The second GM editorial also spotlighted the pace in which the Canadian vaccination campaign was moving, arguing about the need for greater urgency in getting the vaccine to Canadians (The Globe and Mail, 2009b). The final editorial specifically addressed the duty of healthcare workers to get vaccinated against H1N1 to protect themselves, as well as their patients (The Globe and Mail, 2009g). It argued that the excuses healthcare workers are giving for avoiding the vaccine, such as doubts about the necessity of it and safety of the vaccine, are not only unfounded, but ultimately compromise public confidence and trust in the public health system.

The first NYT editorial explored how the public was responding to the vaccine campaign and argued for the importance of inoculation (The New York Times, 2009b). It

encouraged those vulnerable to contracting H1N1 to get the vaccine, arguing that the evidence shows the H1N1 vaccine to be just as safe as the seasonal flu vaccine. The second editorial provided a campaign update and offered data about the number of individuals infected and vaccinated, as well as an update on the infection and mortality rates of the disease (The New York Times, 2009c). The few editorial pieces found on the vaccine appear to be focused on getting citizens to trust the health authorities in the face of uncertainty.

Overall, the majority of articles published in both papers endorsed the public health argument that favours vaccination. Very little of this coverage was critical of the need for vaccination, although some criticism of the logistics behind the testing and roll-out of the vaccine was evident. The focus on providing information is further amplified by the fact that the majority of articles, for both newspapers, were printed in the front section. Eight-four percent (26/31) of the U.S. coverage appeared in the front section of the NYT, compared to seventy percent (23/33) in the GM, of which five were front-page stories⁴, thus establishing the role of vaccination in the fight against the disease as a highly newsworthy topic.

News Foci

The next focus of analysis was on the presence of different themes (See Appendix E for expanded table). Each article was coded for primary, secondary, and tertiary foci. It should be noted that there were a few instances where only one or two themes could be found in select articles. This only occurred in the analysis of NYT articles, with 5 articles

⁴ Unfortunately Factiva did not provide page numbers for the NYT articles, just the section.

being found to have 2 foci, and one article found to only have one. The article found to have one focus was 116 words in length, simply stating that the vaccine had been shipped (McNeil Jr., 2009b). The articles found to only have two foci were fewer than 1,000 words, with three being less than 500 words.

Across both newspapers, a total of 19 different areas of focus were identified. The GM's vaccine coverage emphasized 17 different themes, compared to 15 areas of thematic foci in the NYT. Approximately half the articles focused on the availability of the vaccine, reflecting the supply and demand pressures that were more acutely experienced in the U.S. In the *New York Times*, this was the primary focus in 6 articles and was a secondary focus in another 6. In contrast, vaccine availability was mostly a tertiary focus in the *Globe and Mail's* coverage, largely because supply problems were less significant in Canada. Out of the 16 articles that did take up the issue of vaccine availability, most (n=10) addressed it as a very minor topic of attention. This indicates that while it wasn't uncommon in the Canadian coverage, it was rarely a major topic of concern.

Table 1: Topical Areas of Focus

	The Globe and Mail			The New York Times			Total
	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary	
Vaccine Supply	2	4	10	6	6	4	32
Government Competency	7	9	4	4	3	4	31
Vaccine Program	7	2	3	8	3	1	24
Fear of H1N1	1	3	8		3	6	21
Vaccine Safety		7	2	2	5	3	19
Vaccine Science		2	6		1	4	13
Vaccine Fear		2	1	3	4	1	11
Risk		2	4	1	2	2	11
Vaccine Success	4		3	2		1	10

The second most common focus, occurring in 31 of the articles, was government competency. Government competency is defined by a focus on either the success of government actions, or the questioning of government action. For example, the NYT article, *Official Endorses Workplace Clinics for Vaccine Distribution* primary focus was public outcry over the government approving shipment of vaccine to workplaces (McNeil, 2009e). This appeared in 20 GM and 11 NYT articles. In the *Globe and Mail*, it appeared most often as a secondary (9/20) and primary focus (7/20). In the *New York Times*, by contrast, the focus occurred fairly evenly as a primary (4/11), secondary (3/11), and tertiary focus (4/11). Furthermore, both newspapers focusing on government competency hints at the newspapers' important watchdog role, as a check against political power.

The third most common news focus was the vaccination program, which appeared in 24 articles (12 articles in each paper). It appeared most often in the NYT (8/12) and GM (7/12) as a primary focus. Articles focusing on the vaccination program occurred usually in the months of October and November for the GM and from September – November in the NYT. This period of focus for both newspapers matches when each country was rolling out their vaccine campaigns. The heavy focus on providing information on the vaccination program suggests that the newspapers understood the magnitude of the situation, and were performing a public service role in highlighting the importance of the vaccine, yet at the same time recognizing that they could not just speak for the state.

The fourth most common news stories foci found was H1N1 fear. It occurred in 12 *Globe and Mail* articles, and 9 *New York Times* reports (total n=21). For both

newspapers it appeared most often as a tertiary focus to supplement other themes. In the GM it was a tertiary focus in 8/12 articles, and 6/9 in the NYT. This is unsurprising as fear around H1N1 appeared in articles that had a primary foci of the vaccination program, government competency, or availability of the vaccine. The focus of fear of H1N1 was found relatively evenly across all months of GM coverage, while in the NYT it appeared most frequently between September and November. The focus on disease fear can be understood to act as a secondary piece of information, one that provides support for the importance of immunization.

The fifth most common area of thematic focus was vaccine safety, appearing in 19 articles. This appeared in a similar manner to fear of H1N1. Information on the safety of the vaccine was most often a secondary focus of a news story appearing as such in 5/10 NYT articles, and 7/9 GM articles. In news stories it acted as information supporting the vaccination program, by promoting the safety of the vaccine. Furthermore, the focus on vaccine safety appeared with the highest frequency in news articles from September to November, corresponding to when vaccine trials started, and during government sponsored vaccine promotion campaigns. This reflects the newspaper discussing the safety of the vaccine when issues around vaccination and the vaccine were perceivably most important to the public.

The sixth most common focus, occurring in 13 articles, was vaccine science. It appeared as a focus in 5 NYT articles and 8 GM articles, and never as a primary focus. Vaccine science stories were those that highlighted the science behind vaccines, such as how the ingredients in the vaccine work. It was usually a tertiary focus in the GM (6/8)

and NYT (4/5). In both papers, vaccine science focused coverage occurred mostly in the months of September and October, during the vaccine trials period.

The seventh most common focus discovered, found in 11 articles, was vaccine fear. It appeared 8 times in the *New York Times* and 3 times in the *Globe and Mail*. These were stories that highlighted fears of citizens around the vaccine, usually through the use of emotive language. Fear of vaccine only appeared as a primary focus in the NYT (3/8), and was predominantly a secondary focus in the GM (2/3). It was chiefly found in both newspapers in the months of September and October, coinciding with the vaccination campaign.

The eighth most common focus discovered, occurring also in 11 articles, was risk. It was found as a focus in 5 NYT articles and 6 GM articles, appearing as a secondary and tertiary focus in 4/5 NYT articles, and 6/6 GM articles. Risk differed from the focus of fear, as it was often statements of fact using the word risk, and not fear. This focus occurred dominantly in the month of October for both newspapers. This matches the time frame of when citizens would be most concerned with risks around the vaccine, as vaccination programs were commencing. Additionally news focus on risk demonstrates the concern citizens have relating to risk taking, and their desire to know what sort of risks existed in conjunction with H1N1 and the vaccine.

The final thematic focus found in the newspaper coverage was vaccine success, appearing in 10 articles. It occurred in 7 GM articles, and 3 NYT articles. Articles that had a focus on the success of vaccine occurred frequently in September and October, the months leading up to the start of the mass immunization program in the U.S. and Canada,

and usually as a primary foci (4/7 in the GM and 2/3 in the NYT). These were stories that highlighted how previous vaccines have essentially eradicated diseases, such as small pox and polio. The focus on immunization success is another way in which the newspapers presented arguments to the public about vaccine safety.

The fourth to eighth most dominant foci were used as extra pieces of information after a larger focus, such as the vaccination program, or availability of the vaccine. This is evident through their dominance in being secondary or tertiary foci. This helps explain the trends of use of these foci, as well as the primary dominance of the first three foci (availability of the vaccine, government competency and the vaccination campaign) as they were often the primary foci of articles. The use of vaccine success, the ninth most occurring foci in the coverage is arguably of more importance or dominance than foci four to eight, as while it appeared less, it did appear primarily as a primary focus.

Source Use

The final part of the content analysis involved looking at how sources were used and positioned in both papers to frame the H1N1 vaccine debate. This was done to provide insight into who were the primary definers framing the vaccine situation for the public. It was also analyzed to understand and hypothesis on why certain sources were used and positioned within the news coverage.

Table 2: News Sources

	The New York Times	The Globe and Mail	Total
Public Health Orgs.	78	94	172
Laypersons	24	30	54
Government Officials	13	6	19
Medical Practitioners	13	13	26
Vaccine Manufacturers	12	23	35
Others	10	40	50

Both newspapers relied heavily on public health organizations as key agenda-setters who established the main framing of this issue. The *Globe and Mail* sourced 12 public health organizations 94 times within 33 newspaper articles. Thus almost half (45.6%) of all sources used by the GM in framing the vaccine story were organizations that are strong advocates of immunization. The *New York Times* sourced public health organizations at an even higher rate of concentration, citing 11 unique organizations 78 times in 31 articles. While this is less overall than was found in the GM's coverage, it accounted for a higher percent (50.2%).

The main public health organization cited in the GM's coverage was the Public Health Agency of Canada (PHAC), which was then led by Canada's Chief Public Health Officer, Dr. David Butler-Jones. Butler-Jones is cited 21 times, accounting for 77.8% of all PHAC references. This can be understood as the newspaper is sourcing the most notable figure of the organization, placing him in a position of high credibility and legitimacy. Druckman (2001a) suggests that citizens often turn to elites that are seen as more credible and legitimate in helping them understand complex issues. In this case Dr. Butler-Jones is positioned as a source of high standing, with strong levels of scientific credibility. Dr. Butler-Jones was used by the GM to address questions of vaccine

production, distribution, and safety, thus reflecting the main areas of thematic attention described above.

The second most frequently cited public health agency in the GM was the Ontario Agency of Health Protection and Promotion (OAHPP), part of Public Health Ontario. It was cited 17 times, accounting for nearly one-fifth (18.1%) of citations. Most of these citations were attributed to Dr. Michael Gardam, director of infectious disease prevention and control. Dr. Gardam was used by the GM to comment on: the fact that the U.S. are taking a more aggressive approach to swine flu (Weeks, 2009), that Canada has not been hyping up the threat of H1N1 but been “pretty cool” about the risk to public health, and to act as a source of knowledge translation between the scientific community and public (The Globe and Mail, 2009c). Gardam was also used in the paper to establish the safety of the vaccine and to set the discursive agenda for how the vaccine was debated.

Other public health organizations that were used by the GM are listed in appendix G, and include the World Health Organization, Health Canada, and the Ottawa Hospital Research Institute. There were seven other public health organizations cited by the GM, however these organizations received very few citations overall. Much of the information these organizations were sourced for, align with the statements from PHAC and OAHPP, placing them primarily as amplifiers of the PHAC messages about safety, efficacy and risk.

In the *New York Times*, the U.S. Centers for Disease Control and Prevention (CDC) accounted for approximately 35% of all public health agency source use. The two most dominant CDC voices were Dr. Anne Schuchat, the director of the agency’s flu

division (cited 10 times), and Dr. Thomas R. Frieden the director of the CDC (cited 7 times). The second most common U.S. public health organization used by the NYT was the National Institute for Allergy and Infectious Disease (NIAID). NIAID was sourced 16 times, accounting for 20.5% of all health authority citations. The dominant voice for NIAID was Dr. Anthony S. Fauci, the agency director and U.S. lead on the H1N1 vaccine trials. Like the GM's use of Butler-Jones, Fauci was positioned by the NYT to set the agenda for the discussion about vaccine safety, while CDC sources spoke to broader trends in the behaviour of the disease and the administration of the inoculation campaign.⁵

In total the *New York Times* cited 10 different public health organizations, and the *Globe and Mail* cited 12. While an array of organizations were used, both papers favoured two sources above all others, each of which is the lead national organization for their respective country and, in the case of the OAHPP in Canada, within the province and city where the paper is published. All of these organizations were positioned as leading the charge in the battle against H1N1. Not surprisingly, the dominant frames established in the coverage of both papers reflected the views of these organizations that H1N1 was a potentially deadly disease and that the vaccine (framed as safe and effective) was the best course of defense for public health.

The second dominant news source in both papers was ordinary citizens, or laypersons. Laypersons were cited 30 times in the GM (14.6% of source use) and 24

⁵ Other public health organizations regularly cited by the NYT include: the Health Department and U.S. Food and Drug Administration. Six other public health organizations were also cited albeit far less frequently. These health organizations most often reaffirmed, and restated the dominant messages put forth by other Public Health Organizations, acting as amplifiers on vaccine issues.

times in the NYT (16% of source use), although within this group there was far more variation in the perspectives toward vaccine efficacy and safety. This group in the GM included, in order of dominance: unspecified citizens, mothers, Native Americans, teachers, and fathers. Laypersons in the NYT, in order of frequency, comprised: unspecified public employee, mothers, lawyers, fathers, children, principal, school district, and bank.

The GM featured a few articles that were aimed at answering questions from the public about the vaccine. Sources quoted in these types of articles were usually parents who were positioned as concerned about vaccine safety, as it pertained to their children. Most questions were about potential side effects, including possible reactions for people with egg allergies, differences between the seasonal flu and the H1N1 virus, and the relative safety of different vaccine delivery mechanisms (i.e. adjuvanted or unadjuvanted) (Picard, 2009c; The Globe and Mail, 2009c).

Laypersons, mainly parents, were thus used as a proxy for framing public uncertainty about the wider issue of immunization. For example, one mother cited by the *New York Times* said, “I go back and forth on this [getting her children vaccinated against H1N1] everyday. It’s an emotional topic” (Steinhauer, 2009b). In both the GM and NYT parents were also cited on their opinions of being vaccinated when they did not fall in the priority groupings. For example, Kelly Fuerst says, “she doesn’t blame her acquaintances who, as she put it, ‘slid into line. That’s human nature’” (Valpy, 2009). Ms. Shefferman, a stay-at home mom, is used by the NYT saying, “If they’re not high-risk, they should have respect for those who are,” referring specifically to the priority groupings of at-risk

populations (Steinhauer, 2009a). In these instances, the use of parental voices provided a humanizing touch to the issue of vaccination.

The use of parents clearly presented a human-interest side to the H1N1 vaccine, and thus complemented the public health frame established by public health organizations like PHAC and the CDC. For instance, school principals and teachers were identified and used in the coverage to account for the vaccination situation in schools; parents were positioned as worried and uncertain, almost always asking questions about the vaccine, and describing the logistical hurdles of getting their children vaccinated; indigenous populations were used to comment on issues relating to equity and vulnerability; and a small handful of lawyers were used by both papers to comment on legal issues relating to mandatory vaccination of healthcare workers.

The third most cited actor in the *New York Times* and sixth most in the *Globe and Mail* was elected government officials. The GM cited government officials 6 times, accounting for 2.9% of all sources. The NYT cited elected politicians a total of 13 times (8.7%). Elected officials can be seen almost as an extension of the public health organization categories, as the most dominant public health organizations used, were quasi-government bodies.⁶ This can be understood through a unified voice being presented by public health organizations and the government, as their primary goals were aligned – getting citizens to receive the H1N1 vaccine. Furthermore, the primary public health organizations sourced by each paper, PHAC in the GM and CDC in the NYT, are government health agencies.

⁶ Elected officials are different from public health organizations in that their focus is more on the political realm and the function of government operations, than on promoting public health.

Examples from this category include the use of the prime minister of Canada by the GM to comment on the vaccine situation and the use of the mayor of NY to comment on what the city is doing to protect its citizens. In the GM Stephen Harper explains he “will not be jumping any queues and will be using the public health system, lining up for [our] shots like everyone else” (The Globe and Mail, 2009a), and “that he would wait for the vaccine to be recommended” (The Globe and Mail, 2009g). His first comment aligns with the dominant message, that everyone should get the shot but that they should follow the priority groupings listed. However, his second comment fits more with additional voices, as he is not directly reaffirming the dominant message of ‘get vaccinated’, but is not fully opposing it as he is arguing he will get the vaccine... but only when it is recommended to him. The use of the mayor of NY, Michael R. Bloomberg, by the NYT was confined to one article, on what New York City is doing to protect its citizens against swine flu, such as providing free vaccinations (Chan & Foderaro, 2009). In this case the NYT is using the Mayor to define the vaccination plan for his city.

Another commonly used source in both newspapers was medical practitioners. This category comprised general practitioners, pediatricians, nurses, pharmacists, dietary aid, and in one case, an x-ray technician. Medical practitioners were cited 13 times in the *Globe and Mail* (6.3% of sources) and 13 times in the *New York Times* (8.7% of sources). Doctors were the most frequently cited medical practitioner by the GM (9 times) and the NYT (10 times). They were used by both newspapers to comment on the distribution of the H1N1 vaccine to citizens and the frontline pressures in the vaccination clinics as demand for inoculation surged, particularly for children. In one article, several physicians (many of which were pediatricians) described in detail the impact of the pandemic and

surge in vaccine demand on their practice. One pediatrician described a 65-75% rise in telephone calls specifically about the H1N1 vaccine; another accounted for the “floods of parents” arriving to the office asking when the vaccine would be available (Hartocollis & McNeil, 2009). Similar patterns of source framing were identified in the GM.

Vaccine manufacturers were also present in both papers, cited 23 times (11.2%) in the *Globe and Mail*, and 12 times (8%) in the *New York Times*. For both newspapers, vaccine makers functioned as commentators on the production, safety, success and resurgence of vaccines. In the GM, Dr. Michael Ossi, an infectious disease expert at GlaxoSmithKline stated health experts were asking him “how much [vaccine] can you make and how fast” (Waldie & Robertson, 2009). Dr. Claude Vezeau, the former CEO at IAF BioChem International, was also invited by reporters to comment on manufacturing opportunities in the era of pandemic planning. In a report published on December 30, 2009 he discusses how manufacturers were all losing money manufacturing vaccines in the 90s, until federal pandemic preparations created a boom in his company’s business. This focus on the financial benefit, and growth of the vaccine manufacturing industries, generated discursive tension between the role of vaccine makers as both providers and profiteers. Although the coverage that addressed the role of vaccine production emphasized the public health benefits of vaccines, these stories were complicated by references to the tremendous economic benefits for the industry of pandemic planning, preparedness and response.⁷

⁷ The GM only sourced three vaccine manufactures, while the NYT cited seven. This is likely the result of Canada having one primary manufacturer for all its H1N1 vaccine needs, and the U.S. relying on a multitude.

The final category of sources appearing in both newspapers was a collection of ‘other’ voices. This category comprised celebrities, sports teams, infectious disease specialists not affiliated with any particular public health organizations, university researchers and professors, anti-vaccine advocacy groups, officer for e-vitamins, market researchers, an ethicist, medical journals, a health economist, and a hospital department. In the *Globe and Mail* this category accounted for 19.4% of source use (40 citations), and 6.7% in the *New York Times* (10 citations), with no sources independently accounting for more than 2% of citations (with the exception of celebrities, however they only appeared in one article).

Thematic Analysis: Findings

In this section I elaborate more fully on the key themes that were found in the vaccine coverage and expand on some of the patterns from the quantitative analysis. The same sample of articles used for the content analysis was used for the thematic analysis. The qualitative analysis was carried out through multiple careful readings of all the articles, looking closely for reoccurring patterns within the texts, resulting in the discovery of the following themes: risk, fear, reassurance, government failure, anti-vaccination and vaccination as moral duty. Many commonalities and differences were identified in how the vaccine was reported by both newspapers.

Risk

The concept of risk was prominent in the coverage and came to be articulated in two ways: in discussions about the vaccine and its ability to minimize risk of infection and risk assessment associated with the threat of infection.

The first theme discovered in connection to the concept of risk, was risk minimization. Risk minimization is defined as sentences or phrases that refer to various ways of reducing potential threats, such as side effects or disease. Phrases or sentences that constructed the theme of risk minimization mentioned the thwarting or avoiding of risk. One form of risk minimization in the GM and NYT included an intensive focus on at-risk groups, and the vaccination plan designed to ‘protect’ them. At-risk groups for vaccination were prioritized, as they were individuals most vulnerable to serious complications from contracting H1N1. The framing of “at-risk” groups is effective in informing citizens that this virus should be taken seriously and poses serious harm. More

importantly, with the at-risk group including the young and healthy, individuals who usually feel the flu poses small risk to them and therefore do not need vaccination, might change their mind and be concerned.

Risk minimization also emerged in the GM and NYT's coverage of the vaccine through emphasis on professional groups that could help lead the effort to lessen the potential of serious infection and harm, to both the general population as well as at-risk groups. "Healthcare professionals are a key group to be vaccinated. First they will be in contact with H1N1 patients and are at increased risk of contracting the virus and should be protected as our responsibility to them" (Alphonso, 2009c). In this case, healthcare professionals were targeted as a key group for vaccination, as it will help minimize risks for the patients they treat, as well as themselves. The focus on healthcare professionals was significant. Healthcare workers did not endorse the vaccine (as will be discussed later) and many opted out of inoculation. The lack of healthcare workers willingly receiving the vaccine converted a discourse of risk minimization into a discourse of risk amplification by communicating to the public that vaccination in this case is not necessary, for anyone, since those who were most likely to come into contact with sick or immunocompromised patients did not think it necessary.

Risk minimization also appeared in the news coverage of the H1N1 vaccine in relation to the notion of herd immunity, in both the NYT and GM. Herd immunity refers to how the "chain of infection is blocked when the prevalence of protected individuals in the population is higher than a disease-specific threshold" (Plans, 2012). In other words, as more individuals are vaccinated against a disease, the greater protection all inhabitants of that region (including those not vaccinated) have against contracting the disease. The

New York Times reported how a computer model, using the experience of “mandatory flu shots for Japanese schoolchildren, suggested that when 50 percent of children are vaccinated, a community’s risk of a seasonal flu epidemic falls by two thirds, and when 70 percent are vaccinated, the risk drops to 4 percent” (Medina, Hager, Hartocollis, McNeil Jr., & Moynihan, 2009). This was used as an exemplar that communicated to parents why they should support efforts to expand H1N1 inoculation throughout the school system. The more parents that have their children vaccinated the more the risk of contracting H1N1 is minimized.

In the *Globe and Mail*, direct statements about herd immunity could also be found. In one reader Q&A, Dr. Kumanan Wilson explained the concept of herd immunity in terms of risk minimization: “There are segments of the population that will either not be able to receive the vaccine or will not develop sufficient immunity to the vaccine. This is why it is particularly important that we have a high rate of vaccine coverage so that these individuals can be protected by herd immunity” (Alphonso, 2009c). This quote promotes vaccination as more than a matter of personal safety, but as a matter of ethical responsibility. It was tantamount to describing vaccination as a virtue of good citizenship and moral duty towards the care of others.

Risk minimization also appeared in the form of monitoring across the news stories on the H1N1 vaccine, with references to monitoring for adverse events, side effects, and potential risks from the vaccine. In the NYT’s, Dr. Fauci, the medical scientist in charge of the vaccine trials in the U.S., is quoted saying, “about 2,400 volunteers will be tested in this round. All will be monitored for bad reactions” (McNeil, 2009a). This specific quote refers to monitoring for risks from the vaccine during the trials. However,

references to monitoring for risks from the vaccine during its rollout also appeared. Several articles referred to the surveillance system in place that would enable doctors to report adverse reactions to the vaccines in almost real time (McNeil, 2009d).

The *Globe and Mail* similarly discusses risk minimization in this way. Although there was sufficient discussion of the surveillance system in place for monitoring and responding to adverse reactions, references were also paid to not rushing vaccine production in the interest of ensuring “necessary checks or safety measures” (The Globe and Mail, 2009e). On the one hand, the use of surveillance to monitor for vaccine reactions frame the public health system as prepared and responsive; yet, on the other hand the emphasis on possibilities of side effects also introduces into the discussion the possibility of harm, thus illustrating that risk always entails a dialectic between benefits and harms.

Alternative forms or methods of minimizing the risk of contracting H1N1, other than vaccination, appeared infrequently in the news coverage. One-way references towards preventative measures appeared was through reference to an ad campaign focusing on hand washing. For example, “Dr. David Butler-Jones, the man who, in a \$3.5 million advertising campaign, has been relentlessly urging Canadians to get vaccinated and wash their hands, has not yet been vaccinated either” (Picard, 2009b).⁸ Another example appearing in the GM coverage of the H1N1 vaccine is “unlike the current crop of ads, which tell Canadians to cough and sneeze into their sleeves and to wash their hands with soap and water, the new batch will urge people to get the swine-flu shot”

⁸ It is worth noting that the follow-up sentence explains Dr. Butler-Jones’ reason for not being vaccinated is that he decided to wait, due to media reports of vaccine shortages, long waits and queue- jumping.

(Rennie, 2009). Other suggestions for prevention included: “avoid coughing or sneezing into the air and stay home when sick” (Weeks, 2009). The low number of comments on alternative methods of H1N1 prevention could be due to the nature of articles selected for this study. Many other forms of H1N1 prevention were being circulated before the vaccine was formulated (therefore before the time frame of the articles used in this study). Furthermore, they are likely to have been more central in articles focusing on H1N1, which were omitted in this study.

The final way that risk was framed in the coverage was through statements that weigh the risk of vaccination against the risk of disease. This weighing of risks can be seen in a quote from Anand Kumar, a specialist in critically ill patients, in the GM saying, “Although any vaccine comes with risks, they are “infinitesimally small” while the risks from influenza are ‘far, far higher,’” (Weeks, 2009). This is significant as risk comparisons have been found to be useful in helping individuals in their decision-making process, though context is often the deciding factor in whether risk comparisons work (Fishhoff, 2012). Therefore, this type of appeal used in the media, could have worked on individuals who were seeing the effects of H1N1 themselves, or saw themselves in a likely position of contracting H1N1.

Similar statements weighing the risk of vaccination against the risk of H1N1 were found in the NYT. For example,

In measuring the risk of the vaccine, there is general consensus among doctors that serious reactions are rare... A recent New England Journal of Medicine study showed that among Americans hospitalized with swine flu last spring, one in four ended up in intensive care and 7 percent of them died (Steinhauer, 2009b).

Similar to the previous quote from the GM, this statement serves to draw attention to the risk of vaccination against that of H1N1, reminding citizens that the possible risks attached to the vaccine are very minimal and non-life threatening, compared to H1N1, which has already caused numerous deaths.

Fear

The next type of focus that was found in the newspaper coverage on the H1N1 vaccine was fear. Fear was presented throughout the news articles in two ways. The first was the fear of vaccine, and the second was fear of the disease itself.

The newspaper coverage of the H1N1 vaccine provided a focus on fear through comments using the word fear, or afraid, that could cause anxiety and fright. This occurred dominantly through comments from ordinary citizens, as well as statements from experts in response to the worry and concern of parents. For example, a *New York Times* article explained how physicians are trying “to win over those parents who are just as tearfully afraid of the vaccine” directly states that parents are afraid of the vaccine (Klass, 2009). The *Globe and Mail* had similar mentions, referencing parents saying, “The Canadian studies aren’t even done yet [on the vaccine]! I for one won’t be taking the shot!” (The Globe and Mail, 2009f). This quote, much like those from the NYT’s, highlights the concern and fear about the vaccine, especially, in this case, through the use of exclamation marks to emphasize the intensity of concern. A more direct example of this can be seen by a poll they published in the GM explicitly asking readers: “Does the use of an adjuvant in the H1N1 vaccine scare you?” More than three quarters (77%) of all respondents said yes (Alphonso, 2009c).

Fear was also conveyed in the news coverage around the use of adjuvants. In the GM fear about the adjuvanted vaccine was particularly prominent and addressed in Q&As formatted articles with expert sources. One reader, demonstrating the persistence of the Wakefield legacy, highlights “the studies linking vaccination to an increased incidence of autism in children, and the hosts of possible side effects linked to the ingredients of the adjuvants” (Alphonso, 2009c). In framing their fears about the vaccine, this individual suggested that inoculation could be avoided and replaced by hand washing and use of sanitizers as safer preventative measures. In another example from the GM a reader expressed concern “about the adjuvant squaline that is being added to the vaccine. This is the same substance that was added to the anthrax vaccine and was implicated in causing Gulf War Syndrome in American soldiers” (The Globe and Mail, 2009c). In this case, fear is potentially stoked by extending the connection between the properties of the vaccine to other kinds of disease.

Fear around the H1N1 vaccine in the NYT was also portrayed through concern about adjuvants. This is surprising as adjuvants were not used in vaccines distributed in the U.S. Comments found in the NYT include: “officials fear that using adjuvants would raise public fears about vaccine safety” (Pollack, 2009a), and comments linking the fear of vaccine to the concern of “whether they might cause an autoimmune disease, like rheumatoid arthritis, in which the immune system attacks the body’s own tissue” (Pollack, 2009a). The first comment directly links fear to adjuvants, while the second highlights the potential side effects of adjuvant use in vaccines. The further depiction of rheumatoid arthritis as attacking bodily tissue serves to create a fearful image for individuals. The use of fear evoking words plays on individuals’ emotions making it

standout and stick in their minds, as the use of ‘attack’ makes arthritis seem quite severe and painful.

Reassurance

One consistent concept running throughout both newspapers in their coverage of the H1N1 vaccine was reassurance. Reassurance appeared in multiple forms, but specifically in relation to themes of vaccine safety, government competency, and vaccine success, all of which were dominant foci found in the quantitative analysis.

As previously mentioned, the safety of the vaccine was discussed in news stories not only regarding fear or risk, but also through reassurance. Both newspapers provided regular comparison between the seasonal flu vaccine and the vaccine for swine flu. For example, emphasizing similarities in vaccine production, the *New York Times* wrote, “every year, the seasonal flu vaccine is tailored to match the virus circulating at the time, and the H1N1 vaccine was made exactly the same way” (Parker-Pope, 2009). This comparison was drawn, presumably, to reassure the public that the same safety standards used in producing the seasonal flu vaccine would extend to the H1N1 vaccine. Similarly, comparisons were drawn with the seasonal flu vaccine’s low level of harm, “From all available evidence, it seems just as safe as the flu vaccine that tens of millions of Americans routinely take every year” (The New York Times, 2009b). If tens of millions of Americans receive the seasonal flu vaccine every year, it extends that tens of millions of Americans should have no problem receiving the H1N1 vaccine as well. Indeed, to establish how banal the new vaccine is, the GM wrote, “the reality is that there really are not any credible reports about any safety issues with the vaccine. We have been giving

flu shots for decades...this is just another flu shot” (The Globe and Mail, 2009c). This example is providing reassurance through, first stating that no real safety issues have been found, and second, that this is another flu shot in the long line of flu shots that have been used to safely immunize people for decades.

The second way reassurance occurred in the coverage was through news stories and comments denying links of certain side effects with vaccines. One type of potential side effect from vaccination that received attention was Guillain-Barré syndrome, discussed in chapter 1. An example of this is, “there is a possibility that the vaccine itself might provoke side effects; for example, about one in 100,000 people who received the 1976 swine flu vaccine developed Guillain-Barré syndrome” (Allen, 2009). In this example the coverage eviscerates history and the differences between the current H1N1 strain and the weak strain of swine flu that circulated more than three decades ago. However another article addresses the potential of contracting the syndrome from the 2009 swine vaccine stating, “vaccines are now much purer than they were... and Guillain-Barre syndrome is far rarer” (Steinhauer, 2009b). While the risk of Guillain-Barré syndrome from the 2009 swine flu vaccination is significantly lower than it was during the 1976 event, by its very nature the ‘risk’ of adverse reaction means that the possibility still exists. Other statistics were used in the explanation of the risk of side effects. One example is, “Of the first 39,000 Chinese to get shots, only four had side effects including muscle cramps and headaches” (Parker-Pope, 2009).⁹ Real numbers are being given to the public on the side effects from the vaccine in an attempt to

⁹ It should be noted that the H1N1 vaccine was released in China before the U.S. and Canada. Therefore, early newspaper articles tended to use Chinese statistics on the vaccine as it was what was available at that time.

demonstrate that the vaccine is safe, and risk of side effects is very low. Furthermore, this quote also highlights that the side effects found in only four individuals were minor.

The use of statistics can be understood as one method of providing unambiguous information to the public. However it does have the potential for different framing effects to occur. As Druckman (2001b) argues, statistics are open to equivalency framing. In this case a negative frame is used, highlighting the likelihood of getting Guillain-Barré, instead of the likelihood that no serious effect will occur. This has the ability to cause citizens to focus on the probability of contracting the syndrome, even though it is highly unlikely. As well it creates a negativity bias whereby we focus on and remember more negative events than positive ones. It further provides a measure for citizens to base their perception of benefit versus risk; i.e. does the benefit of the vaccine outweigh the one in a million chance of contracting Guillain-Barré syndrome.

It is interesting that while the risk of contracting Guillain-Barré syndrome from the vaccine is extremely low, it was constantly reappearing in both newspapers (22 references in the GM and 11 in the NYT). One explanation for this could be the connection to the 1976 H1N1 scare originating in the U.S. The mass H1N1 vaccination campaign in 1976 was halted due to high rates of Guillain-Barré syndrome. Its likely that many Americans who lived through the 1976 H1N1 scare, are more than aware and fearful that issues with that vaccine would reappear with this H1N1 vaccine. The Canadian focus could also be connected to individuals who were aware of the precedent case. The influence and impact of the 1976 flu scare is evident on the GM, as it references it. To illustrate: “The disastrous 1976 swine flu vaccination campaign was derailed by reports of numerous cases of Guillain-Barré” (Picard, 2009b), “the swine-flu

vaccine was in 1976 linked to Guillain-Barré Syndrome” (Blatchford, 2009), and “GBS ...was associated with the swine flu vaccine in 1976 and never since” (The Globe and Mail, 2009c). Two of these examples appeared in Q&A articles designed specifically to appeal to people who are still collecting information and are uncertain about whether to receive inoculation.

Another area of reassurance about vaccine side effects was in regards to autism. Both papers published comments refuting the link between autism and vaccines such as: “there have been numerous studies examining vaccines and autism and an association has not been supported” (Alphonso, 2009c) and “Dr. Miller, a serious scientist, also recently presented a paper to U.S. Congress, in which she and another researcher confirmed their study shows no link between the measles, mumps and rubella vaccine and autism.” (Blatchford, 2009). These quotes are meant to reassure citizens that the link between autism and vaccines is unfounded. The big difference in how the two newspapers reassured the public on this risk, was that the *New York Times*, unlike the *Globe and Mail*, connected this link to anti-vaccine movements. For example, “the anti-vaccine movement, largely comprising activists and a handful of doctors and researchers who connect a variety of health problems – particularly autism spectrum disorders – to vaccines” (Steinhauer, 2009b). However, as Dan Kahan (2014) has recently shown, vaccine risks are not an issue of concern or contention for many citizens, and ad hoc reports on resistance to childhood immunizations can create misimpressions that can lead citizens to oppose immunization campaigns.

Reassurance also appeared through regular reminders about medical surveillance to monitor potential side effects. In the *New York Times*, drug monitoring was mentioned

around the vaccine trials. Dr. Fauci is paraphrased by the NYT stating, “All [volunteers in the vaccine trial] will be monitored for bad reactions” (McNeil, 2009a). The *Globe and Mail* does make mention that an “adverse event monitoring system for the vaccine” [was] being implemented (Alphonso, 2009c) and quotes a Health Canada spokesperson stating that “the agency is working with others around the world to ensure that appropriate control measures would be in place to monitor the safety and effectiveness of a vaccine and to ensure the timely communication of any potential adverse events following immunization” (Alphonso & Galloway, 2009). Similar examples were found in the NYT, including an article published in November, which emphasized, “federal health officials have wisely initiated an expanded system of monitoring to detect any serious adverse effects among recipients and quickly determine whether they are caused by the vaccine” (The New York Times, 2009b). In all these cases, a monitoring system is regularly noted to reassure the public that if a serious adverse event were to be found from the vaccine, the system would detect it and inform the public through their physicians and others in the healthcare system.

The link between risk and reassurance also emerged in the coverage through an emphasis on ‘government competency’. Each paper addressed government competency differently, as each government had its own approach to dealing with both the disease and the vaccine. As noted earlier, Canada had one sole supplier for the H1N1 vaccine, a fact that was often combined with others to not only make the Canadian government look prepared for a pandemic but also to reassure the public that enough vaccine would be available for all who wanted it. Examples of this theme in the GM include: “Canada is using an adjuvant in its vaccine that will help this country produce enough vaccine for

all” (The Globe and Mail, 2009b), “Unlike other countries, we’re manufacturing enough vaccine for the whole population” (quoted from Dr. Butler-Jones)(White & Alphonso, 2009), and “Pharmaceutical company GlaxoSmithKline has a long-standing contract with the government to provide vaccines to every Canadian who wants and needs it in the event of a pandemic” (Alphonso, 2009c). The main use of these statements is to reassure the public that when the vaccine becomes available in Canada there will be enough for all, unlike many other countries. Such advanced preparedness emerged following the case of SARS, after which the government guaranteed that if a future pandemic were to arise it would have enough vaccine to protect its citizenry.

The Canadian government’s actions were also used to reassure pregnant women. This connects to the reassurance provided around the safety of the vaccine. The GM covers how the Canadian government, knowing concerns existed about the safety of adjuvanted vaccine for pregnant women, decided to purchase non-adjuvanted vaccines for them to promote choice and, ideally, increase vaccine uptake. One article mentions “the federal government later ordered 1.8 million doses of vaccine that does not contain adjuvants for pregnant women and young children” (Rennie, 2009). This quote states the federal government later ordered 1.8 million doses, as it had previously decided to only use adjuvanted vaccines. It reconsidered this decision due to fear and confusion about how safe adjuvants were for pregnant women and young children. In later articles, additional reassurance was provided to pregnant women, addressing worries that they would have to wait for the non-adjuvanted vaccine. Canada’s chief public-health officer Dr. David Butler-Jones, was quoted saying, “the adjuvanted vaccine and the non-adjuvanted vaccine would be received at the same time” (White & Alphonso, 2009). This

is also one area where confusion arose, as competing arguments for and against the adjuvanted vaccine appeared, and citizens were confused over why an adjuvanted and unadjuvanted vaccine was needed, as well as why pregnant women should receive the unadjuvanted vaccine when the adjuvanted vaccine was reportedly safe.

Reassurance that the government was doing all it could to ensure the safety and wellbeing of its citizens appeared in the *New York Times* through a focus on protecting children by ensuring access to “free vaccinations, through nasal spray or shots, beginning in October at every public elementary school” (Chand & Foderaro, 2009). This was done to eliminate the barriers many parents report to vaccinating their children. The vaccine was “distributed free to local jurisdictions, like city and state health departments, which are responsible for taking orders from doctors, hospitals, school systems and the like” (Hartocollis & McNeil, 2009).¹⁰ Free vaccines were being provided so individuals, who could not afford the cost of receiving the shot, would still have access to the vaccine if they wished.

U.S. citizens were also being reassured that their government was doing all it could through statements about the government choosing to not use adjuvants. “Federal health officials...have decided not to use adjuvants, even though they think they are safe, because anti-vaccine lobbyists have campaigned against them”(McNeil, 2009d). In this explanation, the U.S. governments reasoning behind using a non-adjuvanted vaccine is so that more citizens could feel safer getting vaccinated. Although one might see this as

¹⁰ While free vaccines were available in both countries, they are mentioned separately for the NYT as their health care system does not provide free vaccines for all citizens, unlike Canada

capitulation to the anti-vaccine lobby, it also served to take some of the oxygen of publicity away from this movement.

One final form of reassurance found across all vaccine coverage during the H1N1 pandemic, was a reoccurring emphasis on vaccine efficacy and success. In both papers this was demonstrated through references to vaccine efficacy, for example “a single shot of swine flu appears to protect most children and teenagers nearly as well as it protects adults” (McNeil, 2009h). Previously it was thought that two doses of the vaccine would be needed for children, but the vaccine had been found to be so successful in creating antibodies, that children only need one dose. A similar statement on the effectiveness of the vaccine from the GM is “Canada’s vaccine manufacturer says one dose – not two – of its new H1N1 drug offers enough protection from the pandemic influenza virus” (Alphonso, 2009e). The reassurance that only one vaccine would be needed for children can be perceived as one response to parents not wanting to have to wait in lineups twice to have their children vaccinated. This diminished the access barrier to vaccine uptake as parents would only have to line up once to have their children vaccinated.

The *Globe and Mail* also included historic references to vaccine success stories more broadly. One article explained, “vaccination began in Britain in the 1790’s...For many centuries, smallpox had ravaged populations, killing about 20 per cent of its victims, and leaving many more blind and disfigured. Vaccination was instantly hailed as a great medical breakthrough” (Bliss, 2009). Furthermore this article mentions “overtime, researchers developed vaccines against other horrible scourges – the defeat of polio by the Salk and Sabin vaccines since the 1950s has been particularly notable – and even against diseases that had previously been considered mild rites of childhood, including

measles, mumps and chicken pox” (Bliss, 2009). These examples were presented to provide reassurance to citizens that vaccines work, and well enough that they have eradicated diseases like small pox and polio; through vaccines developed with more primitive methods than the H1N1 vaccine.

Government Failure

“Government failure” emerged as the fourth theme in the newspaper coverage of the H1N1 vaccine. This theme was taken up differently in each country. The U.S. government was accused of failure in its vaccine supply management, and for failing to ensure that vulnerable at-risk groups would be vaccinated first. The Canadian government, by comparison, was blamed not for a vaccine shortage *per se*, but for administrative bungling that led to a slow roll out of the vaccine into the public health system.

Several NYT stories attributed the Obama government’s failure to ensure adequate supply by focusing on its practice of sourcing vaccines from several foreign manufacturers, and of not having a contract with a single manufacturer that would guarantee supplies would reach the market in a timely manner. Presumably, the U.S. uses multiple vaccine manufactures to avoid production delays, as well as to provide maximum flexibility. As one article put it, “the drawback to relying on foreign plants was made clear recently when the Australian government pressured CSL to keep its vaccine at home instead of fulfilling its contract for 36 million doses of swine flu vaccine for the U.S.” (McNeil, 2009c). The theme of ‘government failure’ also extended from the national level to the municipal, where New York health officials came under fire for failing to ensure fairness in the distribution of the vaccine by allowing some corporate

employees to obtain the vaccine ahead of vulnerable groups: “News reports ... that the two banks and other companies received doses of the vaccine led Dr. Thomas R. Frieden, the director the Centers for Disease Control and Prevention... to send out a letter reminding officials nationwide to make sure the vaccine goes only to people in high priority groups” (Anderson & McNeil, 2009). This reminder to ensure the vaccine reached those in high priority groups first surfaced on news that methods used by the government to distribute the vaccine to these groups was failing.

The alleged failure in the U.S. vaccine administration was also framed as an attack on ethics and through a human-interest narrative. The *New York Times* focused on the myriad efforts to which ordinary citizens were going to circumvent the priority process: “Some reduce themselves to lying about a pregnancy, or an underlying medical condition, that would move them ahead of the pack” (Steinhauer, 2009a). This is later explained as possible only because healthcare workers were admitting to not checking personal documentation. Another account stated how, “public vaccination campaigns have been plagued by reports of people begging vaccinators for shots or admitting having lied about being pregnant or asthmatic” (McNeil, 2009e). Similar accounts appeared in the GM coverage with parents, not in the priority groups, receiving the vaccine when they took their children to be vaccinated (Valpy, 2009). This was allowed as many nurses felt there was enough vaccine to go around. While these comments can be seen to reflect poorly on the public, it also reflected poorly on the government for failing to ensure that only individuals in at-risk groups would be inoculated first.

Allegations of queue-jumping were also raised in the GM, although it did not translate into accusations of government failure to the same extent as in the NYT

coverage. One article discussed the ethics behind the employees at Canada's only vaccine manufacturer, along with their spouses and children receiving their vaccinations ahead of Canadians in the high priority groups: "The children and their mommies and daddies walking through the doors of Quebec's GlaxoSmithKline Inc. did so with the nod, if not the blessing, of medical ethicists" (Valpy, 2009). While some would question the fairness of these actions, the article argued that "front-line health care workers and vaccine production and distribution workers are at the top of the list for being inoculated. The principle is that people who care for the sick and make provisions for keeping others healthy need to be healthy themselves" (Valpy, 2009). Thus rather than providing evidence of unfairness, the coverage explored some of the ethical issues and tensions in pandemic preparedness practices.

Where queue jumping did emerge as a potential source of 'government failure' was in the context of professional sport teams, notably the NHL's Calgary Flames and Toronto Maple Leafs, getting priority treatment ahead of all other citizens at the outset of the vaccination campaign, when news media were reporting surges in demand that were outstripping supply (Wingrove, Paperny & Walton, 2009). The politically contentious nature of this event was made evident when Stephen Duckett, the president and CEO of the board governing health delivery in the province of Alberta acknowledged, "the Alberta decision to vaccinate the Flames was a serious error in judgment on the part of the staff involved" (Wingrove, Paperny & Walton, 2009). This scandal was so big it even expanded beyond Canada and was featured in the Times, among other U.S. news outlets. One article stated, "the Calgary Flames hockey team and their families had been allowed to avoid long public lines and get vaccinated at their arena on Oct. 30, one day before the

province cancelled mass immunizations after demand created a shortage” (McNeil, 2009e).

The main area of contention in Canada pertained to the slow rollout of the federal government’s vaccination campaign, particularly in contrast with other nations. As a GM report noted, “compared to their neighbours to the south, Canadian health authorities are taking their time in determining who will be first in line to receive a pandemic influenza vaccine when one becomes available this fall” (Alphonso, 2009b). As often happens in cases of public health risk, other stories began to focus not on the decisions themselves, but on criticism, how seriously they were treated, and how they were communicated. Another example from the GM stated, “Canada’s public health agency is shrugging off the tortoise-like pace at which the country’s sole supplier will begin testing an H1N1 vaccine – a worrisome blasé attitude, given the severity of the virus” (The Globe and Mail, 2009e). While the slow pace of the rollout could have been attributed to the supplier of the vaccine, the government was positioned as having been at the mercy of big pharma and thus incapable of influencing the speed of development. The criticism of the rollout also raised another common characteristic of these stories: conflict within the public health sector. As another report stated, “Canada's chief public health officer butted heads with the nation's largest association of doctors yesterday, disputing a Canadian Medical Association Journal editorial that accused Ottawa of delaying the rollout of H1N1 vaccines” (White & Alphonso, 2009).

Anti-Vaccination

The fifth theme identified in the media analysis was anti-vaccination. This appeared in the coverage primarily through direct comments about anti-vaccination movements, and in stories focusing on the business of vaccine production.

Both newspapers made references to anti-vaccination movements and their putative impacts on public health campaigns. For example, a *New York Times* piece described how the uncertainty relating to the vaccine had created a context in which anti-vaccine advocacy groups were provided with more publicity and attention:

An assemblage of factors around the swine flu vaccine – including confusion over how it was made, widespread speculation about whether it might be more dangerous than the virus itself, and complaints among some health care workers in New York about a requirement that they be vaccinated – is giving the anti-vaccine movement a fresh airing, according to health experts (Steinhauer, 2009b).

More specifically, anti-vaccine groups were cited in the context of making explicit arguments about the safety risks of various influenza vaccines: “some anti-vaccine groups are raising fears of thimerosal, a preservative used in some brands of flu vaccine. Others issued dire warnings about squalene, an immune booster used in military vaccines and in some European flu vaccines but not in any American ones” (McNeil, 2009f). Although the NYT also clarified that squalene is not in any of the American swine flu vaccines, and regularly provided a response to specific claims and accusations by anti-vaccine groups, their presence as the so-called counterpoint to the official public health agenda established the salience of their arguments in the minds of the public, arguably resonating with existing uncertainty and fear about vaccines, and creating a perception that the safety record of vaccines was a matter of legitimate debate.

This type of discourse could also be found in the *Globe and Mail*. One article focused on struggles with vaccination stating, “this year’s alarm about the menace of the H1N1 virus is proving particularly problematic, for reasons ranging from the anxieties of anti-vaccinationists to the indifference of those who cannot see why they should panic about a relatively insignificant threat” (Bliss, 2009). Anti-vaccine advocates are mentioned here as just one problem facing the vaccination campaign against H1N1, but they are identified in rather abstract terms. This article continues:

From the beginning, however, skeptics attacked vaccination as potentially harmful, oversold, unnecessary and aimed at lining vaccinators’ pockets. The idea of ingesting a sometimes toxic foreign substance was not intuitively acceptable to many people. They had to learn to weigh their natural fear of vaccination against the greater threat of smallpox. (Bliss, 2009).

In this segment, the smallpox vaccine that had been challenged by anti-vaccination groups is highlighted. It explains how individuals’ fear of vaccines had to be combated, highlighting the three areas attacked by anti-vaccine advocates. However, much like the other examples noted above, anti-vaccination movements, groups or sentiments are mostly mentioned in neutral terms, with general statements about what they fear. As well, it mentions the necessity of citizens to get over their fear of vaccines, as the threat posed by diseases is significantly greater. Furthermore, scientific evidence was regularly and consistently presented in response to anti-vaccination arguments in an effort to minimize their impact.¹¹

Specific claims linking to anti-vaccine rhetoric focused largely on the necessity of inoculation in the context of the alleged threat posed by H1N1. The *New York Times* featured a story about Patring Rungreang, an X-ray technician at New York Methodist

¹¹ It should be noted that there were more comments about anti-vaccine lobbyists or groups in the NYT than in the GM.

Hospital in Brooklyn, who “said he had no problem with being vaccinated if it was mandatory. But he felt the fear of swine flu was overblown” (McNeil & Zraick, 2009). This perception about the low threat of the disease reverberated in other coverage. A separate NYT story featured three New York-based nurses on record protesting the necessity of the vaccine: “[They] are not saying: ‘We don’t want to be vaccinated,’ ...” They’re saying: ‘We don’t need this vaccination. We don’t think, for any number of reasons, its effective or necessary” (Hartocollis & Chan, 2009). This line of argumentation was significant to the extent that it might sway the public who would see health care workers, on the front lines of the fight against the disease, as credible, politically neutral sources. Disagreement among health care officials and experts about whether vaccination is necessary is one-way in which uncertainty and confusion about vaccination was sown.

Similar comments and quotes appeared in the *Globe and Mail* as well. One article noted that “the disease [H1N1] often may not be deadly; the Prime Minister seemed to waffle; if Health Canada isn’t in a rush, then maybe it’s not that important” (The Globe and Mail, 2009g). The fact that the Prime Minister and Health Canada were framed as unrushed and unconcerned would be sure to leave the public in a state of uncertainty. Another article questioned the notion that vaccines are the best line of defense against influenza, noting that, “many people argue that there is no need to be vaccinated, that we should depend on our immune systems and bolster them with good nutrition” (The Globe and Mail, 2009f). In a third article, famous Canadians such as singer Jann Arden, were interviewed about their own views on vaccinations. Arden, the skeptic, was quoted in relation to her own views against vaccination: “I’m not getting the shot...I’m coming into

a period of time where I meet probably 100 people every night and shake their hands and have a picture taken with them. But having said that, I'm a chronic hand washer" (The Globe and Mail, 2009a).¹²

Vaccination as Moral Duty

Another theme that emerged in the data analysis pertained to the moral duty of citizens to be vaccinated. This theme appeared in newspaper coverage addressing the responsibilities of healthcare workers to their patients and themselves. For example, in the GM, Dr. Kumanan Wilson, who was featured throughout the vaccine campaign, is quoted stating, "it is [his] personal belief that it is the responsibility of health care workers to get immunized to protect their patients" (Alphonso, 2009c). He is arguing that healthcare workers should be bound by their moral obligation to protect themselves, and, more importantly, sick patients with weakened immune systems. A similar phrase appearing in another article is "the public, and health-care workers in particular, should act responsibly by being vaccinated against H1N1 as soon as the vaccine is available in Canada" (The Globe and Mail, 2009g). In this statement, the duty to be vaccinated is placed on citizens as well as healthcare workers. It further emphasizes that vaccination should be done quickly. One GM article even went so far as to argue that, "it's socially irresponsible not to get vaccinated" (Bliss, 2009).

This theme was additionally portrayed in the *New York Times* through remarks about mandatory vaccination. For instance, "She [Dr. Julie Gerberding, the former director of the CDC] had pushed for years for mandatory vaccinations – not just to

¹² Anti-vaccine movement's range of discursive strategies also included attacks on the notion of the vaccine industry's economic influence and power.

protect health care workers, she explained, but to protect their patients, who are often aged, have weakened immune systems or are bedridden after surgery” (McNeil & Zraick, 2009). The idea of mandatory vaccination is explained as a precaution, making hospitals and healthcare facilities safer for all individuals. This is furthered by an example provided; when “in 1990...a state court upheld regulations requiring mandatory rubella vaccinations and annual tuberculosis testing for health care workers, ruling that the regulations were tailored to make hospitals safe places to get well” (Hartocollis & Chan, 2009). Connecting the practice of vaccination with moral duty and responsibility not only politicizes the issue, but also potentially stigmatizes individuals who opt to not be vaccinated, portraying them as irresponsible, selfish, and willing to place their own values and beliefs ahead of the public and, particularly, their patients.

The thematic analysis has illustrated how themes of risk, fear, reassurance, government competency, anti-vaccination, and moral obligation of vaccination were present in the newspaper coverage of the H1N1 vaccine by the GM and NYT. It has further shown how these themes intersect with the major foci found in the quantitative analysis, to form different pictures of the H1N1 vaccine, and the vaccination process of each country.

Conclusion

The goal of this conclusion is to reflect on the findings and what they mean in relation to the previously discussed literature and theory, and what they mean for public health communication. Both newspapers examined in this study published numerous stories about the H1N1 vaccine, from the beginning of the development of the vaccine, through the vaccination campaign. The articles analyzed here account for roughly 15% of each newspaper's total H1N1 coverage. This work, and its findings, contributes to the existing body of research in health risk communication by providing an account of the H1N1 vaccine as it was portrayed in what are arguably two of the most important agenda-setting newspapers in North America. This research is intended to fill a gap in research by focusing explicitly on how the question of vaccination was framed. The study was guided by three empirical questions: **R₁** Who set the media agenda about vaccines? **R₂** How are issues of risk and responsibilities articulated within the coverage? **R₃** What are the differences between the newspapers portrayals of the H1N1 vaccine, and what does this mean for how we understand health risk?

R₁: Who Set the Media Agenda?

The media agenda for both newspapers was set primarily by the official public health organizations in both Canada and the U.S. Both the *New York Times* and the *Globe and Mail* relied heavily on a small range of sources to define the situation, with the bulk of citations attributed to Canada's Public Health Agency (PHAC) and the provincial body responsible for vaccine safety, Ontario Agency of Health Protection and Promotion. In the NYT, these included the U.S. Centers for Disease Control and Prevention (CDC) and

National Institute of Allergy and Infectious Diseases (NIAID). The heavy use of these organizations, in conjunction with elected government officials, help explain the dominance of the vaccine efficacy and safety frames in the coverage. This relationship can be explained in myriad ways. Although not the empirical focus of this study, previous research establishes clearly that a combination of news making routines and characteristics of newsworthiness would help explain why the issue and its key sponsors were so clearly identified as the main agenda-setting sources in the coverage of the H1N1 vaccine. For example, news making routine often force journalists to rely on politicians and public officials, as they produce newsworthy events or comments. This is evident as the findings of this research supports and furthers the desired frames of the officials. Similarly, some key characteristics of newsworthiness, such as threshold, frequency, meaningfulness, unexpectedness, and reference to elite individuals, were evident in the news coverage of the vaccine. The vaccine was a significant focus of the H1N1 issue, and elites were constantly referenced in discussion of the bad and good aspects of vaccination and the vaccine program.

R₂: How were Risk and Responsibility Articulated in the Coverage?

To address the second research question, risk was articulated within the coverage through accounts of the numerous and wide ranging possible side effects associated with the vaccine, from head-ache and sore arms to Guillian-Barré Syndrome (GBS). Risk comparators and statistical probabilities were often used in the coverage as rhetorical devices to orient readers to the potentiality of experiencing risk, whether that was referencing the 1 in 1 million possibilities of contracting GBS to the safety records of the H1N1 vaccine relative to the seasonal flu vaccine. Themes of care and duty were also

articulated in the coverage regarding risk through discussions of moral responsibility, as well as government competency (whether or not each country's government was taking care of its most vulnerable citizens).

R₃: Differences Between the GM and NYT Vaccine Coverage

The data analysis identified many similarities in how the *New York Times* and *Globe and Mail* reported on the vaccine. Differences emerged around a number of themes, including: reassurance and government competency, particularly with respect to issues of supply and administration. These differences provide an argument for the importance of context and cultural aspects affecting how risks are represented and understood.

This study found themes of reassurance on the safety of the vaccine, explaining that serious side-effects are extremely unlikely, and that the vaccine is the best way to prevent infection and illness. The beliefs that Brien, Kwong and Buckeridge (2012) discovered to positively influence vaccination behaviour – belief that the vaccine is safe, belief that there are no side effects to the vaccine and belief in the effectiveness of the vaccine – match the major themes and ideas constructed in the media by public health organizations and elected officials. Furthermore, the focus of the media and political elites on reaffirming citizens beliefs, in the safety, effectiveness and extreme unlikelihood of experiencing serious complications from the vaccine, suggests the presence of an active effort to build trust for vaccine, by understanding how citizens perceive the risk of vaccines (Larson, Cooper, Eskola, Katz, & Ratzan, 2001).

Larson et al. (2001) discovered some aspects of vaccination that drive the public to question vaccine safety. These include: vaccine schedules and the strain with meeting them, mandatory vaccines, questions regarding the financial motives of pharmaceutical companies, non-acceptance of scientific evidence and less risk tolerance for curing the healthy (p.526-527). Many of these aspects were also prominent in the coverage examined in this thesis. Particular difficulties with vaccine schedules, of citizens waiting in long lines and issues following priority groups, were evident in both newspapers. Mandatory vaccination was an issue in the NYT and the financial benefits of pandemic response for the vaccine industry featured prominently as well. These aspects of vaccine coverage provide some insight into why citizens may have been concerned, confused, and willing to question the necessity of the vaccine and its associated campaign.

Furthermore, the themes of moral duty to be vaccinated, and the constant bombardment of risk communication urging the public to be vaccinated, placed responsibility for risk prevention on the shoulders of the state but ultimately on its citizens. This finding fits with Eborall and Will's (2001) research, which showed that preventative medication, including vaccines, are primarily centered on the concept of individual responsibility. This also fits the individualization of risk framework developed by Beck (1992; 2006), a feature of living in a risk society. It further helps address the question of how responsibility was framed in the coverage. Both newspapers placed the responsibility of vaccination on citizens, while responsibility for ensuring that those who needed the vaccine first fell to the government and other agents involved in the immunization campaign (i.e. healthcare workers).

The findings of this study also map onto risk discourse theory. Fischhoff (2012) argues that risk comparisons are useful for helping individuals make decisions about the health risks they face. A key theme in both the NYT and GM was comparing the risk of the H1N1 vaccine to the seasonal flu vaccine. This risk comparison might help individuals conclude that the risk posed by the H1N1 vaccine is minimal. Fischhoff (2012) argues that situational factors are frequently used in estimating risk. The frequency of an act, timing and location all impact a person's estimation of risk. In this case the vaccine was a one-time shot (except at the beginning with children), however there were reports of massive line-ups, vaccine shortages, and frequently, the necessity for travel to receive the vaccine. These situational factors could have acted as practical hurdles to vaccination, particularly given that the effects of the disease were reportedly weak among most of those who became infected. Thus, regardless of how persuaded people were about messages of vaccine efficacy and safety, situational factors mitigating against inoculation may have ultimately prevailed in shaping personal decision-making.

Costa-Front, Mossialos, & Rudisill (2009), discuss what they call "socially driven optimism" and its impact on individual's perception of a risk. They report that risks where more benefit is perceived, such as cell phone use, have a greater optimism bias. Citizens might have needed encouragement to receive the H1N1 vaccine as they perceived the vaccine to not have a great benefit to themselves, and therefore did not feel the risk was worth their while. This can be backed up by themes of fear of the vaccine, and fear of side effects. A great amount of coverage focused on trying to minimize fears about the safety of the vaccine, and of the benefit of vaccination (herd immunity and protection from H1N1), which can be understood as an attempt to get the public to view

the vaccine more favourably. This might also be the case as risk avoidance is often seen as rational, while risk-taking is labeled as irrational (Bloor, 1995). In this case it was avoiding the risk posed by the H1N1 vaccine.

Entman's framing theory (2007) discusses how news can reproduce relations of power and reinforce elite viewpoints. Both newspapers privileged the views of a few sources over others, particularly those associated with state public health authorities, and helped establish the definition of the problem, its causes, moral judgments and possible solutions. The problem defined in the framing of the vaccine was to get citizens to be inoculated against H1N1. The government, for both countries, put forth mass immunization campaigns and media campaigns urging citizens to take preventative action by getting the H1N1 shot. The benefit of vaccination was promoted through discussions about the importance of herd immunity as well as by downplaying the putative risks associated with the vaccine. The cause, or forces behind this problem is reluctance by citizens to be vaccinated: fear of side-effects and the inconvenience of receiving the vaccine are typically the main reasons people report for being uneasy about flu vaccination. Government officials were subsequently judged for their handling of the immunization campaign. Challenges associated with the vaccine rollout, including, queue jumping and failing to properly prepare for the pandemic, were widely discussed and contributed to public unease and uncertainty about the vaccine. Possible solutions appeared through frames of vaccine safety – promoting the benefits of vaccinations and the extreme unlikelihood of any serious side effect occurring. Possible solutions were also provided through opinion pieces, such as the NYT piece arguing that women need

smaller vaccine doses than men for equal protection – which if followed would mean the current stock of vaccines could go further.

Study Limitations

One limitation to this study is that it cannot be generalized further, as it only looks at two newspapers. Although only two leading media outlets were analyzed, the data present a reliable baseline against which further research could be done to determine whether vaccine coverage in the agenda-setting press can be generalized to the North American media scene broadly. In addition to the limitations of media platforms, the study methods are also limiting of the conclusions drawn. Another limitation was the reliability measure used in this study. Test-retest reliability practice is used most often when one is performing a study on their own. This form of reliability measure can be biased as observational error can occur, as well as intra-observer variability. As a study of representation this research draws only tentative conclusions about the front and back end processes of media production and audience decoding. Mapping the ‘field of intelligibility’ only provides us with clues about how news audiences may have interpreted the coverage, or how newsmakers may have determined what gets included in and outside of the frame. One final limitation is that articles might have been missed that should have been included due to the use of an online database to retrieve the news articles. The database might not have included all articles printed by the newspaper, and did not provide all information about each article (for instance the NYT articles did not include the page the story was printed on).

Future Research on the Media Frames of Vaccines

These findings present a picture of how the main agenda-setting newspapers in Canada and the United States framed the debate about the H1N1 vaccine. Despite the above-mentioned limitations, it provides important groundwork for future research. Follow-up studies might expand this work to examine how not only print, but online and television news shape public understanding about vaccines and health risk more generally. This can provide interesting insight, as if different themes are found across different media channels than different messages, possibly conflicting, were reaching citizens. Furthermore, if the same themes are found across varying media channels then a consistent message was reaching the public, and might provide evidence for the media recycling stories. Further studies can also expand on this research by analyzing shifts in the themes and coverage over time. As this study only looks at a fairly short time frame, the ability to see large changes over time was not captured in the data analysis. This study also provides a foundation for studying other vaccine related debates, such as HPV, DTP and MMR. Comparisons between the debates and representations of different, controversial vaccines can be pursued, as well as how they are readdressed and repurposed by the media. Missing from this study was an examination of the images in the news stories that gave a visual account of the risks and uncertainties associated with vaccination. Visual media, more than text, establish and produce emotive appeals, and it would be valuable to examine how the narratives about risk, uncertainty, responsibility and reassurance may have been constructed visually as well as textually. Future research could move beyond the research on the circulation of texts to also explore how the coverage was both produced and received. This could be accomplished through studies

on how visual representations attached to articles affected individuals opinions on the vaccine, as well as media-frame studies focusing on testing how well the media frames on vaccination were picked up by newspaper readers. Future research can also look at how policy agendas matched media agendas, looking further into the influence of political elites on the news media. These future areas for research can help answer: what frames were reaching citizens before the H1N1 vaccine was released, as well as how the coverage on the vaccine shifted over the full length of the H1N1 vaccination campaign, further discovery into the emotive appeals portrayed through images, as well as if consistent media frames were reaching citizens across different news platforms, such as radio and TV. Finally further research can take up more agenda-setting research focusing on if media agendas match, as well as whether or not media agendas match public agendas, or political agendas.

Appendix

Appendix A

Preliminary Search Results of News Articles

Month 2009	<i>Globe and Mail</i>	<i>The New York Times</i>
July	5	4
August	3	2
September	5	7
October	11	10
November	8	6
December	1	2
Total:	33	31

Appendix B

News Focus Coding Sheet

Newspaper: _____ Section (if given) _____

Headline: _____

Date: _____

Type of Article _____ Word Count: _____

Overall Opinion on Vaccine: _____

Article Focus:

	Primary	Secondary	Tertiary	Extra
Fear of H1N1				
Fear of Vaccine				
Pharmaceutical companies				
Preventative measures				
Government competency				
Vaccination program				
Risk				
H1N1 Outbreak				
Availability of Vaccine				
Profit in Vaccines				
Side-effects				
Success of Vaccines				
Science of Vaccines				
Safety of Vaccines				
Optimism				
Answer Questions				
School Closing				
Wasted Vaccine				
Vaccine Re-call				

Appendix C

Source Coding Sheet

Newspaper: _____

Headline: _____

Sources in Article:

	Name of Source	Type of Source	Quoted or Paraphrased	Commented on	Position on vaccine	Length of quote
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

Appendix D

General Characteristics of the Newspaper Articles Coding Sheet

The Globe and Mail:

	News Articles	Editorials	Other Articles	Total Articles
Total				
<i>Word Count:</i>				
1-500				
500-1000				
1000-1500				
1500-2000				
2000+				

The New York Times:

	News Articles	Editorials	Other Articles	Total Articles
Total				
<i>Word Count:</i>				
1-500				
500-1000				
1000-1500				
1500-2000				
2000+				

Appendix E

Findings of the News Focus

The Globe and Mail

Article Focus:

	News Articles				Opinion/ Editorial Pieces			
	Primary	Secondary	Tertiary	Extra	Primary	Secondary	Tertiary	Extra
Fear of H1N1	1	3	4	2			2	
Fear of Vaccine		1				1		1
Pharmaceutical Companies	2	1						
Government Competency	5	9	3		2		1	
Vaccination Program	7	2	1				1	1
Risk		2	2	1				1
Availability of vaccine	2	3	5	1		1	4	
Profit in Vaccines	2			1				
Vaccine Safety		4	1	1		3		
Side-effects			1	1			1	
Success of Vaccines	2		2	1	2			
Science of Vaccines		2	5	1				
School Closings	1							
Answer Questions					2			
Preventative Measures	1						1	
Wasted Vaccine	1							
Anti-Vaccine						1		

The New York Times

Article Focus:

	News Articles				Opinion/ Editorial Pieces			
	Primary	Secondary	Tertiary	Extra	Primary	Secondary	Tertiary	Extra
Fear of H1N1		2	4	1		1		1
Fear of Vaccine	3	3		1		1		
Pharmaceutical Companies		1		1				
Government Competency	3	2	2	2	1	1		
Vaccination Program	7	3	1		1			
Risk		1	1	1	1	1		
H1N1 Outbreak	1							
Availability of vaccine	6	5	3			1	1	
Profit in Vaccines			1					
Vaccine Safety	1	4	3		1	1		
Side-effects		2						
Success of Vaccines	1		1		1			
Science of Vaccines		1	3				1	
Optimism					1			
Vaccine Recall	1							

Appendix F

Findings: General Characteristics of the Newspaper Articles

The Globe and Mail:

	News Articles	Opinion Pieces	Editorials	Total Articles
Total	29	1	3	33
<i>Word Count:</i>				
1-500	1		1	2
500-1000	17		1	18
1000-1500	5		1	6
1500-2000	1	1		2
2000+	5			5

The New York Times:

	News Articles	Opinion Pieces	Editorials	Total Articles
Total	26	3	2	31
<i>Word Count:</i>				
1-500	4		1	5
500-1000	9	3	1	13
1000-1500	10			10
1500-2000	2			2
2000+	1			1

Appendix G

Findings for Source Analysis

Globe and Mail

Length (words)	Medical Practitioners	Public Health Organizations	Elected Government Officials	Vaccine Manufacturers	Layperson	Others
0-10	2	4	1	4	5	1
11-20	5	33	2	9	10	10
21-30	3	29	2	6	7	11
31-40		16	1	3	2	9
41-50	2	10		1	2	5
51-60		2	1		1	1
60+	1				3	3
Total	13	94	6	23	30	40

Breakdown of Source Groups

Medical Practitioners

	General Practitioner	Hospital Department	Nurse	Pharmacist
Total	9	2	1	1

Public Health Organizations

	PHAC	Health / Gov. official	OAHPP	WHO	Health Canada	OHRI	CIDRAP	CCfV	NIAID	AHS	NHS	TPH	MH SSA
Total	27	18	17	8	7	4	3	2	2	2	2	1	1

Elected Government Officials

	British Embassy	Canadian Government	United States	Prime Minister	Provincial Government
Total	1	1	1	1	2

Vaccine Manufacturers

	GlaxoSmithKline	IAF BioChemInternational	Sanofi-Aventis
Total	16	4	3

Layperson

	Teacher	Native American	Unspecified Citizen	Mother	Sports Team	Father
Total	3	7	11	8	2	1

Others

	Market Researcher/ Firm	Ethicist	University Professor	CMJA	Sports Team	Celebrity	Health Economist
Total	5	2	8	2	2	17	4

The New York Times

Length (words)	Medical Practitioners	Public Health Organizations	Elected Government Officials	Vaccine Manufacturers	Layperson	Others
0-10	2	4	2	2	1	
11-20	5	33	4	5	10	4
21-30	4	25	3	2	4	3
31-40	1	11	2		7	
41-50	1	2	1	3	1	1
51-60		2	1			1
60+		1			1	1
Total	13	78	13	12	24	10

Breakdown of Source Groups

Medical Practitioners

	Pediatrician	General Practitioner	Nurse	Dietary Aid	X-ray Technician
Total	6	4	1	1	1

Public Health Organizations

	C D C	FDA	NIAID	Federal Health/ Government Officials	DHHS	NYCOSH	WHO	Health Department	IOM	NVIC	NVPO
Total	27	4	16	10	3	2	3	5	2	3	3

Elected Government Officials

	NY Mayor	NY Health Commissioner	Health Directors
Total	5	5	3

Vaccine Manufacturers

	MedImmune	AstraZeneca	Novartis	Juvis BioTherapeutics	GlaxoSmithKline	Sanofi- Aventis	Sanofi Pasteur
Total	1	2	3	2	1	1	2

Layperson

	Mother	Father	Children	Public Employee	Lawyer	School District	Bank	Principal
Total	6	2	1	8	4	1	1	1

Others

	Panel of Health Experts	Infectious Disease Specialist	University Research Chair/ Professor	Anti-vaccine Advocacy Groups	Officer for E- Vitamins
Total	2	2	4	1	1

Appendix H

Definition of News Foci

The first two news foci, fear of H1N1 and fear of vaccine are defined through a focus on some form of dread, or fear being attached to the disease or vaccine. This occurs through connecting the disease or vaccine to some form of danger or threat.

The third focus, pharmaceutical companies, refers to any news focus that is on a pharmaceutical company and its operations.

The fourth focus, government competency, is defined by a focus on either the success of government actions, or the questioning of government action. It includes the focus of calling into question the competency of the government.

The fifth type of news focus, uncertainty, is any focus on uncertainty that exists or is being created around the vaccine, including vaccine procedures, and the H1N1 disease.

The sixth and eighth news focus coded for, vaccination program and availability of vaccine are self-explanatory.

The seventh news focus, risk, was defined through a focus on potential risks from taking some form of action. Often this focus was clearly defined through the use of the word risk, and a section explaining such risk.

The ninth news focus, profit in vaccine, was defined by a focus on how vaccines have become a profitable business, or discussion about the amount the government was paying for vaccines.

The tenth and eleventh news foci, vaccine safety and side effects, are self-explanatory.

Articles presenting arguments and historic references to how vaccines have become successful in eradicating disease are what comprised the twelfth news focus, success of vaccine.

The thirteenth news focus, science of vaccine, relates to any explanation of the science behind the creation of the vaccine, or additives in the vaccine.

The news focus of school closings is self-explanatory.

The news focus on answering questions relates to articles that were question and answer in style.

The news focus of preventative measures was any article explaining measures that can be taken to minimize the likelihood of contracting H1N1.

The news foci of wasted vaccine, vaccine recall, and anti-vaccine are also self-explanatory.

Appendix I

Definition of Source Categories

The category of medical practitioners was defined as any person treating individuals in the medical field.

Elected government officials are separated from public health organizations, as they are those elected to their positions and are connected directly to the government.

Public Health Organizations encompassed government and non-government workers for a public health organization.

Vaccine manufacturers are straightforward, encompassing comments from the vaccine companies as well as their workers.

The category of laypersons consists of regular citizens with no specific expertise attached to health and vaccination.

The category of 'others' encompasses individuals that did not fit into any of the other categories.

References

- Abeyasinghe, S., & White, K. (2011). The Avian Influenza Pandemic: Discourses of Risk, Contagion and Preparation in Australia. *Health, Risk & Society* , 13 (4), 311-326.
- Allan, S., Adam, B., & Carter, C. (2000). *Environmental Risks and the Media*. New York: Routledge.
- Allen, A. (2009, August 2). Prepare for a Vaccine Controversy. *The New York Times*. Retrieved from <https://global.factiva.com>.
- Alphonso, C. (2009a, October 19). Approval for H1N1 Vaccine Expected this Week. *The Globe and Mail* . Retrieved from <https://global.factiva.com>.
- Alphonso, C. (2009b, July 30). Decision in September on Who Gets Vaccine First. *The Globe and Mail* . Retrieved from <https://global.factiva.com>.
- Alphonso, C. (2009c, September 10). Dr. Kumanan Wilson on the Vaccine. *The Globe and Mail* . Retrieved from <https://global.factiva.com>.
- Alphonso, C. (2009d, July 15). Natives Fear Ending Up Last on List for Vaccines. *The Globe and Mail* . Retrieved from <https://global.factiva.com>.
- Alphonso, C. (2009e, September 15). One Dose of H1N1 Vaccine Likely Sufficient. *The Globe and Mail* . Retrieved from <https://global.factiva.com>.
- Alphonso, C. (2009f, October 22). Provincial H1N1 Vaccination Clinic Plans. *The Globe and Mail* . Retrieved from <https://global.factiva.com>.
- Alphonso, C. (2009g, August 24). The New Flu Challenge: Getting the Vaccine out. *The Globe and Mail* . Retrieved from <https://global.factiva.com>.
- Alphonso, C. (2009h, September 22). Two Flu Shots for Tots, But just One for Adults and Older Children; Trial Shows Vaccines Supply may be Sufficient. *The Globe and Mail* . Retrieved from <https://global.factiva.com>.
- Alphonso, C. (2009i, November 13). Unadjuvant Flu Vaccine Approved for Wider Use. *The Globe and Mail* . Retrieved from <https://global.factiva.com>.
- Alphonso, C., & Galloway, G. (2009, July 23). Poor Nations to get 20% of Canadian Flu Vaccine. *The Globe and Mail* . Retrieved from <https://global.factiva.com>.
- Anderberg, D., Chevalier, A., & Wadsworth, J. (2011). Anatomy of a Health Scare: Education, Income and the MMR Controversy in the UK. *Journal of Health Economics* , 30, p. 515-530.
- Anderson, J., & McNeil Jr., D. G. (2009, November 6). Officials Defend Distribution of Flu Vaccine to Companies. *The New York Times* . Retrieved from <https://global.factiva.com>.

- Beck, U. (2006). Living in the World Risk Society. *Economy and Society* , 35 (5), 329-345.
- Beck, U. (1998). Politics of Risk Society. In J. Franklin, *The Politics of Risk Society* (pp. 9-22). Malden: Polity Press.
- Beck, U. (1992). *Risk Society: Towards a New Modernity*. (M. Ritter, Trans.) London: Sage.
- Beck, U. (2011). *World at Risk*. Malden: Polity Press.
- Beck, U., Bonss, W., & Lau, C. (2003). The Theory of Reflexive Modernization: Problematic, Hypotheses and Research Programme. *Theory, Culture & Society* , 20 (2), 1-33.
- Beck-Gernsheim, E. (2000). Health and Responsibility: From Social Change to Technological Change and Vice Versa. In B. Adam, U. Beck, & J. Van Loon, *The Risk Society and Beyond: Critical Issues for Social Theory* (pp. 122-135). London: Sage .
- Bercovici, J. (2011, March 25). The Most Influential News Orgs, According to Google. *Forbes*. Retrieved from www.forbes.com
- Bish, A., Yardley, L., Nicoll, A., & Michie, S. (2011). Factors Associated with Uptake of Vaccination Against Pandemic Influenza: A Systematic Review. *Vaccine* , 29 (38), 6472-6484.
- Blatchford, C. (2009, October 29). Flu-Shot Skeptics Weave a Web of Lies. *The Globe and Mail* . Retrieved from <https://global.factiva.com>.
- Bliss, M. (2009, October 31). Fear's Old Struggle with Vaccination; The Alarm Over H1N1 Pales Beside the Battles Over Smallpox-- Especially in 19th-century Montreal. *The Globe and Mail* . Retrieved from <https://global.factiva.com>.
- Bloor, M. (1995). *The Sociology of HIV Transmission*. London: Sage.
- Bloor, M., & Bloor, T. (2007). *The Practice of Critical Discourse Analysis: An Introduction*. New York: Oxford University Press.
- Bocking, S. (2010). Mobile Knowledge and the Media: The Movement of Scientific Information in the Context of Environmental Controversy. *Public Understanding of Science*, 21 (6) 705-723.
- Boffey, P. M. (1976a). Anatomy of a Decision: How the Nation Declared War on Swine Flu. *Science* , 192 (4240) 636-641
- Boffey, P. M. (1976b). Swine Flu Vaccination Campaign: The Scientific Controversy Mounts. *Science* , 193 (4253) 559-563
- Boffey, P. M. (1976c). Swine Flu Vaccine: A Component is Missing. *Science* , 193 (4259), 1224-1225.

- Brien, S., Kwong, J. C., & Buckeridge, D. L. (2012). The Determinants of 2009 Pandemic A/H1N1 Influenza Vaccination: A systematic review. *Vaccine* , 30, 1255-1264.
- Canadian Institute for Health Information. (2010, November). *The Impact of the H1N1 Pandemic on Canadian Hospitals*. Retrieved 2012, October 7 from Canadian Institute for Health Information:
https://secure.cihi.ca/free_products/H1N1_AIB_final_EN.pdf
- Carragee, K. M., & Roefs, W. (2004). The Neglect of Power in Recent Framing Research. *Journal of Communication* , 54 (2), 214-233
- Chan, S., & Foderaro, L. W. (2009, September 2). This Time, City Says It's Ready for Swine Flu. *The New York Times* . Retrieved from <https://global.factiva.com>.
- Cheney, P. (2009, November 16). The Wasting; Hundreds of Doses of Expired Vaccine Thrown out due to Short Shelf Life, Scope of Program. *The Globe and Mail*. Retrieved from <https://global.factiva.com>.
- Chermack, T. J. (2003). Mental Models in Decision Making and Implications for Human Resource Development. *Advances in Developing Human Resources* , 5 (4), 408-422.
- ComCast. (2012) *Most Read Online Newspapers in the World: Mail Online, New York Times and The Guardian*. Retrieved from:
<http://www.comscoredata.com/2012/12/most-read-online-newspapers-in-the-world-mail-online-new-york-times-and-the-guardian/>
- Comeau, P. (2007). Debate Begins Over Public Funding for HPV Vaccine. *Canadian Medical Association Journal* , 176 (7), 913.
- Costa-Front, J., Mossialos, E., & Rudisill, C. (2009). Optimism and the Perceptions of New Risks. *Journal of Risk Research* , 12 (1), 27-41.
- Cottle, S. (1998). Ulrich Beck, 'Risk Society' and the Media. *European Journal of Communication* , 13 (1), 5-32.
- Cummings, L. (2011). Considering Risk Assessment Up Close: The Case of Bovine Spongiform Encephalopathy. *Health, Risk & Society* , 13 (3), 255-275.
- D'Angelo, P. (2002). News Framing as a Multiparadigmatic Research Program: A Response to Entman. *Journal of Communication*, 54 (4), 870-888.
- Dearing, J. W. (1989). Setting the Polling Agenda for the Issue of AID. *Public Opinion Quarterly* , 53, 309-329
- Dehner, G. (2010). WHO Knows Best? National and International Responses to Pandemic Threats and the "Lessons" of 1976. *Journal of the History of Medicine and Allied Sciences*, 65 (4), 478-513.

- Dewey, J. (1954). *The Public and Its Problems*. Ohio: Swallow Press Books.
- Dickerson, J., Smith, M., & Ory, M. (2011). Increasing Uptake of Gardasil Among American Adolescents: Comparisons with the History of Hepatitis B Vaccination. *Human Vaccines*, 7 (2), 211-219.
- Downs, J. S., Bruine de Bruin, W., & Fischhoff, B. (2012). Parents' Vaccination Comprehension and Decisions. In B. Fischhoff, *Risk, Analysis and Human Behaviours* (pp. 260-283). New York: Earthscan.
- Druckman, J. N. (2001a). On the Limits of Framing Effects: Who Can Frame? *The Journal of Politics*, 63 (4), 1041-1066.
- Druckman, J. N. (2001b). The Implications of Framing Effects for Citizen Competence. *Political Behaviour*, 23 (3), 225-256.
- Eborall, H. C., & Will, C. M. (2011). 'Prevention is Better than Cure, but...': Preventive Medication as a Risk to Ordinarity? *Health, Risk & Society*, 13 (7-8), 653-668.
- Eggleton, A., & Ogilvie, K. (2010). *Canada's Response to the 2009 H1N1 Influenza Pandemic*. Standing Senate Committee on Social Affairs, Science and Technology. Ottawa: Available at: <http://senate-senat.ca/SOCIAL.asp>.
- Eid, M., & Duffin, S. (2001). Divergence in Foreign Policy and Convergence in Media. *Journal of International Communication*, 17 (1), 21-36.
- Ekberg, M. (2007). The Parameters of the Risk Society. *Current Sociology*, 55 (3), 343-366.
- Elliman, D., & Bedford, H. (2001). MMR Vaccine: The Continuing Saga: Current Concerns Are Idiosyncratic: Most Reviews Have Confirmed the Vaccine's Safety. *British Medical Journal*, 322 (7280), 183-184.
- Entman, R. M. (1989). How the Media Affect What People Think: An Information Processing Approach. *Journal of Politics*, 51 (2), 347-370.
- Entman, R. M. (1993). Framing: Toward Clarification of a Fractured Paradigm. *Journal of Communication*, 43 (4), 51-58.
- Entman, R. M. (2004). *Projections of Power: Framing News, Public Opinion, and U.S. Foreign Policy*. Chicago: The University of Chicago Press.
- Entman, R. M. (2007). Framing Bias: Media in the Distribution of Power. *Journal of Communication*, 57, 163-173.
- Entman, R. M. & Rojecki, A. (1993) Freezing Out the Public: Elite and Media Framing of the U.S. Anti-Nuclear Movement. *Political Communication*, 10, 155-173.
- Fischhoff, B. (2012). Risk Perception and Communication. In B. Fischhoff, *Risk Analysis and Human Behaviour* (pp. 3-32). New York: Earthscan.

- Fischhoff, B., Bruine de Bruin, W., Guvenc, U., Caruso, D., & Brilliant, L. (2012). Analyzing Disaster Risks and Plans: An Avian Flu Example. In B. Fischhoff, *Risk Analysis and Human Behaviour* (pp. 149-172). New York: Earthscan.
- Fowler, E. F., Gollust, S. E., Dempsey, A. F., Lantz, P. M., & Ubel, P. A. (2012). Issue Emergence, Evolution of Controversy, and Implications for Competitive Framing: The Case of the HPV Vaccine. *The International Journal of Press/Politics*, 17 (2), 169-189.
- Fox, N. (1999). Postmodern Reflections on 'Risk', 'Hazards' and Life Choices. In D. Lupton, *Risk and Sociocultural Theory: New Directions and Perspectives* (pp. 12-33). Cambridge: Cambridge University Press.
- Galloway, G. (2009a, July 17). Canada Will have Enough Flu Vaccine to Share. *The Globe and Mail*. Retrieved from <https://global.factiva.com>.
- Galloway, G. (2009b, August 19). Logjam in Vaccine Packaging to Delay H1N1 Flu Shots. *The Globe and Mail*. Retrieved from <https://global.factiva.com>.
- Galtung, J., & Ruge, M. H. (1965). The Structure of Foreign News: The Presentation of the Congo, Cuba and Cyprus Crises in Four Norwegian Newspapers. *Journal of Peace Research*, 2, 64- 91.
- Gamson, W., & Modigliani, A. (1989). Media Discourse and Public Opinion on Nuclear Power: A Constructionist Approach. *American Journal of Sociology*, 95, 1-37.
- Gans, H. J. (2004). Journalism, Journalism Education, and Democracy. *Journalism and Mass Communication Educator*, 59 (1), 10-16.
- Garcia-Basterio, A. L., Alvarez-Pasquin, M.-J., Mena, G., Llupia, A., Aldea, M., Sequera, V. G., et al. (2012). A Public-Professional Web-Bridge for Vaccines and Vaccination: User Concerns About Vaccine Safety. *Vaccine*, 30, 3798-3805.
- Garcia-Sicilia, J., Gillard, P., Carmona, A., Tejedor, J., Aristegui, J., Merino, J., et al. (2011). Immunogenicity and Safety of AS03- Adjuvanted H1N1 Pandemic Vaccines in Children and Adolescents. *Vaccine*, 29, 4353-4361.
- Gilman, S. L. (2010). The Art of Medicine: Moral Panic and Pandemics. *The Lancet*, 375, 1866-1867.
- Goodall, C., Sabo, J., Cline, R., & Egbert, N. (2012). Threat, Efficacy, and Uncertainty in the First Months of National Print and Electronic News Coverage of the H1N1 Virus. *Journal of Health Communication*, 17, 338-355.
- Goodyear-Smith, F., Petousis-Harris, H., Vanlaar, C., Turner, N., & Ram, S. (2007). Immunization in the Print Media -- Perspectives Presented by the Press. *Journal of Health Communication*, 12, 759-770.
- Grady, D. (2009a, December 23). Spray Flu Vaccine is Recalled. *The New York Times*. Retrieved from <https://global.factiva.com>.

- Grady, D. (2009b, July 30). Swine Flu Plan Would Put Some at Head of Line for Vaccine. *The New York Times* . Retrieved from <https://global.factiva.com>.
- Greco, M. (1993). Psychosomatic Subjects and the 'Duty to be Well': Personal Agency within Medical Rationality. *Economy and Society* , 22, 357-372.
- Greenberg, J. (2000). Opinion Discourse and Canadian Newspapers: The Case of the Chinese "Boat People". *Canadian Journal of Communication* , 25, 517-537
- Greenberg, J. & Hier, Sean (2009). CCTV Surveillance and the Poverty of Media Discourse: A Content Analysis of Canadian Newspaper Coverage. *Canadian Journal of Communication*, 34 (3), p. 461-486.
- Greenberg, J., May, T. & Elliott, C. (2005). Homelessness and Media Activism in the Voluntary Sector: A Case Study. *The Philanthropist*, 20 (2), 131-152
- Griffith, A. (1981). Medicine and the Media -- Vaccination Against Whooping Cough. *Journal of Biological Standardization* , 9, 475-482.
- Hall, S. (2001). Encoding/ Decoding. In S. During, *The Cultural Studies Reader* (2nd Edition, pp. 507-517). Taylor & Francis e-Library
- Hall, S. (2006). Encoding/ Decoding. In M. G. Durham & D. M. Kellner, *Media Cultural Studies: Keywords* (Revised Edition, pp. 163-173). Malden: Blackwell.
- Harber, G., Marlow, R., & Zimet, G. (2007). The HPV Vaccine Mandate Controversy. *Journal of Pediatric and Adolescent Gynecology* , 20 (6), 325-331.
- Harcup, T., & O'Neill, D. (2001). What is News? Gatlung and Ruge revisited. *Journalism Studies*, 2 (2), 261-280.
- Hartocollis, A., & Chan, S. (2009, October 17). Albany Judge Blocks Vaccination Rule. *The New York Times* . Retrieved from <https://global.factiva.com>.
- Hartocollis, A., & McNeil Jr., D. G. (2009, October 6). Vaccince Here, Swine Flu Fear Creates a Rush. *The New York Times* . Retrieved from <https://global.factiva.com>.
- Heffernan, C., Misturelli, F., & Thomson, K. (2011). The Representation of Highly Pathogenic Avian Influenza in the Chinese Media. *Health, Risk & Society* , 13 (7-8), 603-620.
- Hermida, A. (2010). Twittering the News: The Emergence of Ambient Journalism. *Journalism Practice*, 4 (3), 297-308.
- Hier, S. P. (2002). Conceptualizing Moral Panic Through a Moral Economy of Harm. *Critical Sociology* , 28 (3), 312- 334.
- Hill, A. (2013, February 8). Measles Outbreaks Hit 18-year High as Effects of MMR Scandal are Felt. *The Guardian*. Retrieved from www.theguardian.com/uk

- Holland, D., Lachocotte, W. J., Skinner, D., & Cain, C. (1998). *Identity and Agency in Cultural Worlds*. Cambridge: Harvard University Press.
- Jenkins, J. C. (1983). Resource Mobilization Theory and the Study of Social Movements. *Annual Review of Sociology* , 9, 527-553.
- Johnson-Laird, P. (1983). *Mental Models*. Boston: Cambridge University Press.
- Kahan, Dan M. (2014). Vaccine Risk Perceptions and Ad Hock Risk Communication: An Empirical Assessment. *CCP Risk Perception Studies*, report No. 17. Retrieved from: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2386034
- Kasperson, J. X., Kasperson, R. E., Pidgeon, N., & Slovic, P. (2003). The Social Amplification of Risk: Assessing Fifteen Years of Research and Theory. In N. Pidgeon, R. E. Kasperson, & P. Slovic, *The Social Amplification of Risk* (pp. 1-46). Cambridge: Cambridge University Press.
- Kata, A. (2010). A Postmodern Pandora's Box: Anti-Vaccination Misinformation on the Internet. *Vaccine* , 28, 1709-1716.
- Kelly, B. J., Leader, A. E., Mittermaier, D. J., Hornik, R. C., & Cappella, J. N. (2009). The HPV Vaccine and the Media: How Has the Topic Been Covered and What are the Effects on Knowledge about the Virus and Cervical Cancer. *Patient Education and Counseling* , 77, 308-313.
- Kepplinger, H. M., Geiss, S., & Siebert, S. (2012). Framing Scandals: Cognitive and Emotional Media Effects. *Journal of Communication* 62 , 659-681
- Klass, P. M. (2009, November 10). Fearing a Flu Vaccine, and Wanting More of It. *The New York Times* . Retrieved from <https://global.factiva.com>.
- Klein, S. L., & Greenberger, P. (2009, October 28). Do Women Need Such Big Flu Shots? *The New York Times*. Retrieved from <https://global.factiva.com>.
- Kraus, N., Malmfors, T., & Slovic, P. (1992). Intuitive Toxicology: Expert and Lay Judgments of Chemical Risks. *Risk Analysis*, 12, 215-232.
- Larson, H. J., Cooper, L. Z., Eskola, J., Katz, S., & Ratzan, S. (2001). Addressing the Vaccine Confidence Gap. *Lancet* , 378, 526-535.
- Lash, S. (1994). Reflexivity and Its Doubles: Structure, Aesthetics, Community. In U. Beck, A. Giddens, & S. Lash, *Reflexive Modernization: Politics, Tradition and Aesthetics in the Modern Social Order*. Cambridge: Polity Press.
- Lash, S. (2000). Risk Culture. In B. Adam, U. Beck, & J. Van Loon, *The Risk Society and Beyond: Critical Issues for Social Theory* (pp. 47-62). London: SAGE Publications.
- Leask, J. (2002). Vaccination and Risk Communication: Summary of a Workshop. *Journal of Pediatrics and Child Health* , 38 (2), 124-128.

- Leask, J., & Chapman, S. (2002). 'The Cold Hard Facts' Immunisation and Vaccine Preventable Diseases in Australia's Newsprint Media 1993-1998. *Social Science & Medicine* , 54, 445-457.
- Leask, J., & McIntyre, P. (2003). Public Opponents of Vaccination: A Case Study. *Vaccine* , 21, 4700-4703.
- Leask, J.-A., & Chapman, S. (1998). 'An Attempt to Swindle Nature': Press Anti-immunisation Reportage 1993-1997. 22 (1), 17-26.
- LeBlanc, D., & Waldie, P. (2009, November 6). Canada Needs Two Vaccine Suppliers, Ottawa Admits. *The Globe and Mail* . Retrieved from <https://global.factiva.com>.
- Li, J. (2009). Intertextuality and National Identity: Discourse of National Conflicts in Daily Newspapers in the United States and China. *Discourse & Society* , 20 (1), 85-121.
- Lichtenstein, S., Slovic, P., Fischhoff, B., Layman, M., & Combs, B. (1978). Judged Frequency of Lethal Events. *Journal of Experimental Psychology: Human Learning and Memory* , 4, 551-578.
- Lundgren, R. E., & McMakin, A. H. (2009). *Risk Communication: A Handbook for Communicating Environmental, Safety, and Health Risks* (Vol. 4). Piscataway, New Jersey: The Institute of Electrical and Electronic Engineers Inc.
- Lupton, D. (1999). *Risk*. New York: Routledge.
- Mairal, G. (2011). The History and the Narrative of Risk in the Media. *Health, Risk & Society*, 13 (1), 65-79.
- Malik Peiris, J., Poon, L. L., & Guan, Y. (2009). Emergence of a Novel Swine-Origin Influenza A Virus (S-OIV) H1N1 Virus in Humans. *Journal of Clinical Virology* , 45, 169-173.
- Marris, C., Langford, I. H., & O'Riordan, T. (1998). A Quantitative Test of the Cultural Theory of Risk Perceptions: Comparison with the Psychometric Paradigm. *Risk Analysis*, 18 (5), 635-647.
- Mason, B. W., & Donnelly, P. D. (2000). Impact of a Local Newspaper Campaign on the Uptake of the Measles Mumps and Rubella Vaccine. *Journal of Epidemiology and Community Health* , 54 (6), 473-474.
- McKee, A. (2003). *Textual Analysis: A Beginner's Guide*. Thousand Oaks: SAGE Publications.
- McNeil Jr., D. G. (2009a, July 23). Clinical Trials for Flu Vaccine are to Begin Soon. *The New York Times*. Retrieved from <https://global.factiva.com>.
- McNeil Jr., D. G. (2009b, September 30). Injectable Flu Vaccine is Shipped. *The New York Times*. Retrieved from <https://global.factiva.com>.

- McNeil Jr., D. G. (2009c, November 5). Nation is Facing Vaccine Shortage for Seasonal Flu. *The New York Times*. Retrieved from <https://global.factiva.com>.
- McNeil Jr., D. G. (2009d, November 31). New Advice on Swine Flu Doses for Pregnant Women. *The New York Times*. Retrieved from <https://global.factiva.com>.
- McNeil Jr., D. G. (2009e, November 7). Official Endorses Workplace Clinics for Vaccine Distribution. *The New York Times*. Retrieved from <https://global.factiva.com>.
- McNeil Jr., D. G. (2009f, September 28). Swine Flu Officials' Message: Don't Blame Shots for All Ills. *The New York Times*. Retrieved from <https://global.factiva.com>.
- McNeil Jr., D.G. (2009g, July 18). Swine Flu Expected to Return With Opening of School. *The New York Times*. Retrieved from <https://global.factiva.com>.
- McNeil Jr., D. G. (2009h, September 22). U.S. Says One Flu Shot Can Protect Most Children. *The New York Times*. Retrieved from <https://global.factiva.com>.
- McNeil Jr., D. G., & Zraick, K. (2009, September 21). New York Health Care Workers Resist Flu Vaccine Rule. *The New York Times*. Retrieved from <https://global.factiva.com>.
- Medina, J., Hager, E., Hartocollis, A., McNeil Jr., D. G., & Moynihan, C. (2009, October 29). Demand Light for Flu Vaccine at City Schools. *The New York Times*. Retrieved from <https://global.factiva.com>.
- Mills, R. (2004). Reflections on the State of Canadian Media. *Canadian Parliamentary Review*. Winter 2003-04, p. 27-31
- Mishra, A., & Graham, J. E. (2012). Risk, Choice and the 'Girl Vaccine': Unpacking Human Papillomavirus (HPV) Immunisation. *Health, Risk & Society*, 14 (1), 57-69.
- Munira, S., & Fritzen, S. (2007). What Influences Government Adoption of Vaccines in Developing Countries? A Policy Process Analysis. *Social Science and Medicine*, 65 (8), 1751-1764.
- Murray, D., & Rothstein, E. (2013). *Documenting Parental Refusal to Have Their Children Vaccinated*. American Academy of Pediatrics, Retrieved from: <https://www2.aap.org/immunization/pediatricians/pdf/refusaltovaccinate.pdf>
- Nachamkin, I., Shadomy, S., Moran, A., Cox, N., Fitzgerald, C., Ung, H., Corcoran, A., Iskander, J., Schonberger, L., & Chen, R. (2008). Anti-Ganglioside Antibody Induction by Swine (A/NJ/1976/H1N1) and Other Influenza Vaccines: Insights into Vaccine-Associated Guillain-Barré Syndrome. *The Journal of Infectious Disease*, 198, 226-233
- Nan, X., Xie, B., & Madden, K. (2012). Acceptability of the H1N1 Vaccine Among Older Adults: Interplay of Message Framing and Perceived Vaccine Safety and Efficacy. *Health Communication*, 27, 559-568.

- Nelson, T. E., Oxley, Z. M., & Clawson, R. A. (1997). Toward a Psychology of Framing Effects. *Political Behaviour* , 19 (3), 221-246
- Newspapers Canada. (2012, August 6). *Daily Newspaper Circulation by Province*. Retrieved 2012, September 22 from Daily Newspaper Circulation Data: <http://www.newspaperscanada.ca/sites/default/files/2011%20Daily%20Newspaper%20Circulation%20by%20Province.pdf>
- Oh, H. J., Hove, T., Paek, H.-J., Lee, B., Lee, H., & Song, S. K. (2012). Attention Cycles and the H1N1 pandemic: A Cross-National Study of US and Korean Newspaper Coverage. *Asian Journal of Communication* , 22 (2), 214-232.
- Oremus, W. (2012). The World's most Popular Online Newspaper. *Slate*. Retrieved from: http://www.slate.com/articles/business/moneybox/2012/02/daily_mail_new_york_times_how_the_british_tabloid_became_the_world_s_most_popular_online_newspaper_.html
- Paperny, A. M. (2009, October 31). Private Toronto Clinic with H1N1 Vaccine Can't Keep up with Demand. *The Globe and Mail* . Retrieved from <https://global.factiva.com>.
- Pareek, M., & Pattison, H. (2000). The Two-dose Measles, Mumps, and Rubella (MMR) Immunisation Schedule: Factors Affecting Maternal Intention to Vaccinate. *British Journal of General Practice* , 50, 969-971.
- Parker-Pope, T. (2009, October 10). As Flu Vaccine Arrives for the Season, Some Questions and Answers. *The New York Times* . Retrieved from <https://global.factiva.com>.
- PHAC (2012, December 8). Lessons Learned Review: Public Health Agency of Canada and Health Canada Response to the 2009 H1N1 Pandemic. *Public Health Agency of Canada*. Retrieved from www.phac-aspc.gc.ca
- Picard, A. (2014). Misinformation Keeping Canadians from Taking Flu Shot, Study Says. *The Globe and Mail*. Retrieved from www.theglobeandmail.com.
- Picard, A. (2009a, November 2). A Guide to H1N1 for Parents; The Globe's Public Health Reporter Answers Yours Questions About Children and Swine Flu. *The Globe and Mail* . Retrieved from <https://global.factiva.com>.
- Picard, A. (2009b, November 2). Your H1N1 Vaccine Questions Answered; The Globe's Public Health Reporter on the Risks and Benefits of the Vaccine. *The Globe and Mail* . Retrieved from <https://global.factiva.com>.
- Pidgeon, N., Kasperson, R., & Slovic, P. (2003). *The Social Amplification of Risk*. Cambridge: Cambridge University Press.
- Plans, P. (2012). New Preventive Strategy to Eliminate Measles, Mumps and Rubella from Europe Based on the Serological Assessment of Herd Immunity Levels in the

- Population. *European Journal of Clinical Microbiology & Infectious Diseases* , 32 (7), 961-966.
- Pollack, A. (2009a, September 22). In Vaccine Additive, Benefit and Doubt. *The New York Times* . Retrieved from <https://global.factiva.com>.
- Pollack, A. (2009b, July 31). Nasal Vaccine Holds Promise Against Swine Flu. *The New York Times* . Retrieved from <https://global.factiva.com>.
- Pollack, A. (2009c, September 22). New Drugs May Attack Flu, but Not in Time. *The New York Times* . Retrieved from <https://global.factiva.com>.
- Pollack, A. (2009d, October 10). Supplies of Regular Flu Vaccine Run Short in Places, but Impact is Played Down. *The New York Times* . Retrieved from <https://global.factiva.com>.
- Pollack, A., & McNeil Jr., D. G. (2009, October 26). Road to Flu Vaccine Shortfall, Paved with Undue Optimism. *The New York Times* . Retrieved from <https://global.factiva.com>.
- Rasbach, N. (2009, October 27). Exploring the World of Vaccine Stock; With Swine Flu Vaccine Top of the News, Pharmaceutical Companies are Again Seeing a Growing Business Opportunity for New Vaccine. *The Globe and Mail* . Retrieved from <https://global.factiva.com>.
- Rennie, S. (2009, October 25). Sweeping Ad Campaign in Works to Promote H1N1 Shot. *The Globe and Mail* . Retrieved from <https://global.factiva.com>.
- Scheufele, D. A. (1999). Framing as a Theory of Media Effects. *Journal of Communication* , 49 (1), 103-122
- Scheufele, D. A. (2000). Agenda-Setting, Priming³³, and Framing Revisited: Another Look at Cognitive Effects of Political Communication. *Mass Communication & Society* , 3 (2&3), 297-316
- Scheufele, D. A., & Tewksbury, D. (2007). Framing, Agenda Setting, and Priming: The Evolution of Three Media Effects Models. *Journal of Communication* , 57 , 9-20
- Scott, A. (2000). Risk Society or Angst Society? In B. Adam, U. Beck, & J. Van Loon, *The Risk Society and Beyond: Critical Issues for Social Theory* (pp. 33-46). London: SAGE Publications.
- Scott, K. (2010). *Pandemic Influenza H1N1 2009-The Canadian Experience*. Toronto: Canadian Society of Pharmacology and Therapeutics.
- Sencer, D. J. (2011). Perspective: Swine- Origin Influenza: 1976 and 2009. *Clinical Infectious Diseases* , 52, 4-7
- Shaban, R. (2009). H1N1 Influenza 09- Managing the 'Moral Panic'. *Australasian Emergency Nursing Journal* , 12, 69-70.

- Shaw, E. E. (1977). The Interpersonal Agenda. In *The Emergence of American Political Issues: The Agenda-Setting Function of the Press*, edited by Donald L Shaw and Maxwell E. McCombs. St. Paul: West Publishing.
- Shenson, D. (2009, October 26). One Person, One Dose. *The New York Times* . Retrieved from <https://global.factiva.com>.
- Shoemaker, P. J., & Reese, S. D. (1996). *Mediating the Message: Theories of Influence on Mass Media Content* (2nd ed.). White Plains, NY: Longman.
- Slovic, P. (1998). If Hormesis Exists...: Implications for Risk Perception and Communication. *Human & Experimental Toxicology* , 17, 439-440.
- Slovic, P. (1993). Perceived Risk, Trust and Democracy. *Risk Analysis* , 13, 675-682.
- Slovic, P. (2000). *The Perception of Risk*. Michigan: Earthscan Publications.
- Slovic, P., Finucane, M. L., Peters, E., & MacGregor, D. (2010). Risk Analysis and Risk as Feelings: Some Thoughts about Affect, Reason, Risk and Rationality. In P. Slovic, *The Feeling of Risk* (pp. 21-36). Washington: Earthscan.
- Soroka, S. N. (2002). *Agenda-Setting Dynamics in Canada*. Vancouver: UBC Press
- Steinhauer, J. (2009a, October 28). Anxious Crowds Meet Ad Hoc Swine Flu Police. *The New York Times* . Retrieved from <https://global.factiva.com>.
- Steinhauer, J. (2009b, October 16). Swine Flu Shots Revive a Debate About Vaccines. *The New York Times* . Retrieved from <https://global.factiva.com>.
- Stokowski-Bisanti, J. (2013, January 20). *Measles Outbreaks Signal Increasing Incidence Comparable with the Prevaccine Era*. Retrieved 2013, February 1 from The Examiner: <http://www.examiner.com/article/measles-outbreaks-signal-increasing-incidence-comparable-with-the-prevaccine-era>
- Sullivan, S. J., Jacobson, R. M., Dowdle, W. R., & Poland, G. A. (2010). 2009 H1N1 Influenza. *Mayo Clinic Proceedings* , 85 (1), 64-76.
- The Globe and Mail. (2009a, October 30). Are You Getting the Flu Shot? Why Rick Mercer is Planning on Getting Vaccinated and Jann Arden Isn't. *The Globe and Mail* . Retrieved from <https://global.factiva.com>.
- The Globe and Mail. (2009b, September 2). Canada Needs a Sense of Urgency. *The Globe and Mail* . Retrieved from <https://global.factiva.com>.
- The Globe and Mail. (2009c, October 27). H1N1 Myth Busters. *The Globe Mail* . Retrieved from <https://global.factiva.com>.
- The Globe and Mail. (2009d, July 21). School Closings, Vaccinations and Quarantines. *The Globe and Mail* . Retrieved from <https://global.factiva.com>.

- The Globe and Mail. (2009e, August 1). The Canadian Tortoise. *The Globe and Mail* . Retrieved from <https://global.factiva.com>.
- The Globe and Mail. (2009f, November 3). The Daily H1N1 Question: Nov. 3 to 6. *The Globe and Mail* . Retrieved from <https://global.factiva.com>.
- The Globe and Mail. (2009g, October 16). The Duty to be Vaccinated. *The Globe and Mail* . Retrieved from <https://global.factiva.com>.
- The New York Times. (2009a, August 20). Company Hopeful on Flu Vaccine. *The New York Times* . Retrieved from <https://global.factiva.com>.
- The New York Times. (2009b, November 5). Take the Shot. *The New York Times* . Retrieved from <https://global.factiva.com>.
- The New York Times. (2009c, December 1). The Swine Flu, as of Now. *The New York Times* . Retrieved from <https://global.factiva.com>.
- The Ontario Ministry of Health. (2009, November 17). *Pregnant Women and the H1N1 Flu Virus*. Retrieved 2012, October 22 from Ontario Ministry of Health and Long-Term Care:
http://www.health.gov.on.ca/en/public/programs/publichealth/flu/tools/assessment/sa_pregnancy_fs.aspx
- Truth News Australia. (2013). *Channel Nine's Assault on Vaccine Skeptics Decoded*. Retrieved 2013, February 1 from Viera Scheibner: <http://www.vierascheibner.com/>
- Tukachinsky, R. (2013). What Turns Events into News? *Communication Teacher*, 27 (3), 146-151.
- Tulloch, J. C., & Zinn, J. O. (2011). Risk, Health and the Media. *Health, Risk & Society* , 13 (1), 1-16.
- U.S. Department of Health and Human Services (2009). *Citizen Choices on the National Vaccine Plan*. Retrieved from:
http://www.hhs.gov/nvpo/vacc_plan/nvp_dialogue_report_final.pdf
- Valpy, M. (2009, November 6). The Ethics of Queue-jumping. *The Globe and Mail* . Retrieved from <https://global.factiva.com>.
- Van Dijk, T. A. (1985). *Handbook of Discourse Analysis: Disciplines of Discourse* (Vol. 1). Toronto: Academic Press Inc.
- van Loon, J. (2005). Epidemic Space. *Critical Public Health* , 15 (1), 39-52.
- Vasterman, P., Scholten, O., & Ruigrok, N. (2008). A Model for Evaluating Risk Reporting: The Case of UMTS and Fine Particles. *European Journal of Communication* , 23, 319-341.
- Vega, T. (2012, May 1). *Small Gain in Newspaper Circulations, Aided by Digital Subscriptions*. Retrieved 2013, February 10 from The New York Times:

<http://mediadecoder.blogs.nytimes.com/2012/05/01/newspaper-circulations-hold-steady-aided-by-digital-subscriptions/>

- Velan, B., Kaplan, G., Ziv, A., Boyko, V., & Lerner-Geva, L. (2011). Major Motives in Non-Acceptance of A/H1N1 Flu Vaccination: The Weight of Rational Assessment. *Vaccine* , 29, 1173-1179.
- Wade, N. (1978). 1976 Swine Flu Campaign Faulted Yet Principals Would Do It Again. *Science*, 202 (4370), 849-852
- Waldie, P., & Robertson, G. (2009, December 30). Flu INC. How Vaccines Became Big Business. *The Globe and Mail* . Retrieved from <https://global.factiva.com>.
- Weeks, C. (2009, October 29). Canada, U.S. Spark Ethical Debate with Different Approaches. *The Globe and Mail* . Retrieved from <https://global.factiva.com>.
- Welch, C. (2009, April 30). Inaccurate 'Swine' Flu Label Hurts Industry, Pork Producers Say. *CNN*. Retrieved from www.cnn.com.
- White, P., & Alphonso, C. (2009, September 2). Doctors, Ottawa Clash over Flu Vaccine. *The Globe and Mail* . Retrieved from <https://global.factiva.com>.
- WHO. (2012). *Global Alert and Response*. Retrieved 2012, April 1 from World Health Organization: <http://www.who.int/csr/disease/swineflu/en/>
- Wijnans, L., De Bie, S., Dieleman, J., Bonhoeffer, J., & Sturkenboom, M. (2011). Safety of Pandemic H1N1 Vaccines in Children and Adolescents. *Vaccine* , 29, 7559-7571.
- Wingrove, J., Paperny, A. M., & Walton, D. (2009, November 5). Vaccination Night in Canada. *The Globe and Mail*. Retrieved from <https://global.factiva.com>.
- Zajonc, R. (1980). Feeling and Thinking: Preferences Need No Inferences. *American Psychologist* , 35, 151-175.
- Zinn, J. O. (2009). The Sociology of Risk and Uncertainty: A Response to Judith Green's 'Is it Time for the Sociology of Health to Abandon Riks?'. *Health, Risk & Society* , 11 (6), 509-526.