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I am submitting herewith a dissertation written by Kunka Dineva Ignatova entitled "Myths, Metaphors, and Mass-Mediated Reality: U.S. Press Coverage of Bird Flu and Avian Influenza Pandemic, 1996-2006." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Communication and Information.

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MYTHS, METAPHORS, AND MASS-MEDIATED REALITY:
U.S. PRESS COVERAGE OF BIRD FLU AND AVIAN INFLUENZA PANDEMIC, 1996-2006

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DEDICATION

This dissertation is dedicated to my parents, Yana and Dinio Ignatovi, who did everything in their power to help me fulfill my dream to study in the United States. They supported all my decisions, never doubted my abilities to succeed, and always encouraged me to keep moving forward.

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Abstract

This study examined U.S. press coverage of the H5N1 bird-flu virus and the possible influenza pandemic in the period 1996 - 2006. One elite and three regional newspapers were used. Framing analysis facilitated by the *QDA Miner* revealed that militaristic, race, natural disaster and Christian/biblical metaphors, as well as the myths of the "other world," the "hero," the "victim," and the "plague," created fear that helped to perpetuate the story and keep it on the media agenda. This was a story that the press constructed both scientifically and metaphorically, relying on scientific facts as well as on cultural myths and moral reasons. The social representation of bird flu and a possible influenza pandemic in U.S. press coverage resonated with representations of SARS, Ebola and other infectious diseases. The bird-flu and pandemic story was ripe with values of faith in science and scientific progress, belief and pride in good and generous people and nations, hard and persistent work in the name of public health. This was a compelling human interest story, descriptive of apocalyptic pictures, different worlds and different cultures, mysterious developments, fears of the novel, uncertain and unpredictable. Myths and metaphors, as parts of language, shared culture and understanding, helped the newspapers paint a vivid, descriptive, and informative picture of the bird-flu virus and the expectant avian influenza pandemic. There was consistency between the four newspapers. The myths and metaphors they used in their bird-flu and pandemic reports transcended the particularities of the papers. Myths and metaphors in coverage provoked and kept public interest in the topic, aided comprehension, and served as shorthand for complexity.

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Chapter 1: Introduction

The H5N1 avian influenza (bird-flu) virus

In 1996, the highly pathogenic H5N1 avian influenza virus was isolated for the first time from a farmed goose in Guangdong Province, China. Outbreaks of the virus followed in poultry farms and markets in Hong Kong (WHO, 2006). Massive culling of chickens took place and some 1.5 million birds were slaughtered in three days to control the outbreak. Experts agreed that these actions averted a pandemic (WHO, 2004). The virus, however, managed to infect humans, and the first human cases of avian influenza were reported in Hong Kong in 1997. Out of 18 sick people, six died. The virus was not seen again until February 2003, when two new human cases (one fatal) were confirmed in Hong Kong (WHO, 2006).

Beginning in 2004, countries started to report H5N1 outbreaks in poultry. Human cases started to occur more frequently and human-to-human transmissions in some cases could not be ruled out (See Appendix B). From 2004 forward, the H5N1 avian influenza virus was on an "infecting spree," responsible for the deaths of more than 100 million birds (Nordqvist, 2005). As of Nov. 7, 2006, 256 reported cases of H5N1 infection in humans had occurred in Thailand, Vietnam, Cambodia, Indonesia, China, Turkey, Iraq, Azerbaijan, Egypt, and Djibouti. One hundred and fifty-two of these had been fatal, which brought the bird flu human mortality rate to almost 60 percent (UK Department of Health, 2006). The virus was confirmed in birds in Africa, Asia, and Europe, and was expected in the Americas very soon (Arieff, 2006). With migratory birds flying from one continent to another all the time in a globalized economy with a high volume of

international travel, it appeared that few obstacles stood in the way of the spreading of the H5N1 avian influenza virus (Higgins, 2006). Statistics about avian influenza spread, infections and deaths change often, which renders any relevant information out-of-date. Three excellent sources for updated statistics and extensive information on avian influenza, which are used in this project, are the websites of the World Health Organizations (WHO)[1], the Centers for Disease Control and Prevention (CDC)[2] , and the United Kingdom Department of Health[3].

Several strains of avian influenza exist, but the H5N1 virus, which occurs mainly in birds and, less commonly, pigs, poses the greatest threat to humans, because of its unique ability to mutate rapidly and acquire genes from viruses infecting other animal species. If more humans become infected over time with this virus, the likelihood also increases that humans, if concurrently infected with human and avian influenza strains, could serve as the "mixing vessel" for the emergence of a new strain with sufficient human genes to be easily transmitted from person to person. Many scholarly articles explain the H5N1 virus, its structure, mutations and transmissibility. One easy, compact and informative read is the book *Avian Flu* by Jeffrey Sfakianos (2006).

Like the virus that caused SARS, the H5N1 virus also made the human immune system overreact while defending the body. This resulted in the overproduction of "pro-inflammatory proteins called cytokines," which are produced by the immune cells regulating the body's immune response, leading to a condition called "cytokine storm." It

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[1] http://www.who.int/topics/avian_influenza/en/ (last checked October 30, 2006).
[2] http://www.cdc.gov/flu/avian/index.htm (last checked October 30, 2006).
[3] http://www.dh.gov.uk/AboutUs/MinistersAndDepartmentLeaders/ChiefMedicalOfficer/Features/FeaturesArticle/fs/en?CONTENT_ID=4102997&chk=OcYuEL (last accessed November 7, 2006).

was this “over-response” that caused death from the H5N1 virus, rather than the replication of the virus itself. It is important to note that younger and healthier people are more capable of having such immune overreaction than are older and less healthy people. Hence the paradox that “the stronger the immune system is, the more likely the person is to die by virtue of an immune system over-response” (Fabian, 2006).

Although it remains an avian disease, and rarely affects humans, scientists feared that it could only be a matter of time before the virus mutated into a form that would pass easily among people, triggering an influenza pandemic in which millions could die and economies would be crippled for months (Blanchard, 2006). In a typical flu season, which occurs every year, 30,000 to 50,000 deaths are reported in the United States and 20 to 30 times that number worldwide (DeNoon, 2005). In the event of a pandemic, according to flu experts, worldwide deaths could range between 2 million and 8 million on the low end and 1.5 billion on the high end (Mikesell, 2005). Estimates vary, but in the United States alone, a pandemic could kill a conservative estimate of 280,000 to 650,000 people (Siegel, 2005).

Influenza Pandemics

An influenza pandemic is a global outbreak of disease that affects a great number of people across the world (CDC, 2006). Pandemic influenza differs from avian influenza, which refers to a large group of various influenza viruses affecting primarily birds. On rare occasions, these viruses can infect other species, including pigs and humans (WHO, 2005). An influenza pandemic occurs when a new subtype emerges that has not previously circulated in humans, and against which humans have not yet built immunity. There are three essential prerequisites for an influenza pandemic: (1) the identification of

a novel viral subtype in animal populations such as swine or poultry; (2) viral replication causing disease in humans; and (3) efficient human-to-human transmission (Gostin, 2004). These definitions, and the statistics and information offered earlier, made it obvious in 2006 that the avian H5N1 was a strain with pandemic potential, because it might ultimately adapt into a strain that is transmitted among humans. The lack of reliable vaccine also complicated the issue. Researchers found that the H5N1 virus had started to mutate quite easily and quickly, much like seasonal flu viruses, requiring new vaccines each year. This meant that the virus was already resistant to the most effective anti-viral drugs and any vaccines that were yet to be produced (Sci-Tech Today, 2006).

An influenza pandemic would affect all countries in the world and people from all racial and socioeconomic backgrounds. It would cause widespread illness as well as great social and economic disruption (WHO, 2005). The World Bank estimated that a pandemic would cause the global economy to lose up to $800 billion (Fabian, 2006).

Memories of the three influenza pandemics of the 20th century added to the apprehension with which the next one was expected. Although Hume (2000) and Crosby (2003) refer to the most severe of those - the 1918-1919 Spanish influenza pandemic - as "forgotten," it is rather hard to forget that some 50 million people died in a world less than one-third the size of the global population at the dawn of the 21st century (Gostin, 2004). An estimated 600,000 Americans died. Those were primarily adults between 20 and 40 years of age (Hume, 2000). H5N1 human deaths appeared to occur in even younger people, between nine and 30 years of age.

Several authors have offered accounts of this great pandemic (Kolata, 1999; Barry, 2004), and words such "plague" (Collier, 1974) and "Devil's flu" (Davies, 2000) have

been used to describe it. Additionally, theses and dissertations have focused on the impact the pandemic had on the American society as a whole (Pettit, 1976) and the way it affected some rural areas in particular (Clark, 1991; Taylor, 1999). All of studies used news articles in addition to other primary sources. None, however, employed a systematic analysis of press coverage. Influenza pandemics and the viruses that cause them are important events with global economic, political, and social impacts. A systematic analysis of media coverage offers a more complete and more accurate understanding of the way mass media portray such significant public health issues. In this light, Blakely (2001, 2003) examined the social construction of influenza over time in the *New York Times, The Times* (London), and the *Readers Guide to Periodical Literature.* Spratt (2001) looked at sources, facts, and figures and their role in framing mainstream news stories and scientific reports. Spratt considered this process crucial to the examination of media messages and the social construction of reality.

The Spanish influenza pandemic killed more people than World War I did, and almost 90 years later, little progress had been made toward unveiling the mystery surrounding the origin and the nature of the virus responsible for the pandemic (Hollenbeck, 2005). Researchers did, however, agree that there were similarities between the 1918 virus and the H5N1 virus, which increased fears for a pandemic of 1918 proportions (Miner, 2006). A study in 2006 revealed that the reconstructed 1918 influenza virus killed infected mice by triggering a severe immune system reaction – an overreaction, rather (University of Washington, 2006). The team of U.S. scientists at the University of Washington and other universities concluded that this “extreme immune response could have provoked the body to begin killing its own cells, making the flu even

deadlier." Commenting on the study, Paul Hunter, professor of health protection at the University of East Anglia, U.K., summed up the research conclusions and implications in the following way:

> People who have died from the current form of bird flu have died in the same sort of fashion as the people who died during the 1918 pandemic. It is an extraordinarily unpleasant death. Clearly, the difference between the virus now and the one around in 1918 is that the current one has yet to develop the ability to spread swiftly from person to person. It is very important to study the 1918 flu to understand the current avian flu virus (BBC News, 2006).

Much less has been written about the other two influenza pandemics, which were much milder and caused significantly fewer deaths. Unlike the virus that caused the 1918 pandemic, the 1957 Asian flu pandemic virus was quickly identified due to advances in scientific technology. The global death toll amounted to about 2 million, with about 70,000 U.S. deaths (Homeland Security, 2005).

The Hong Kong flu outbreak in 1968 resulted in nearly 34,000 U.S. deaths and about 1 million deaths worldwide. The vaccine for this virus was available one month after the outbreak peaked in the United States in December 1968 (Homeland security, 2005).

In 1976, the swine flu caused an additional scare. In January, a private at Fort Dix, New Jersey, died of swine flu. Although his was the only death at the site, health officials were concerned about a major flu epidemic the coming fall. They projected that a million Americans might be killed. In March 1976, President Ford announced that he would ask Congress for funds to produce enough vaccine "to inoculate every man, woman, and child in the United States." This epidemic never materialized, and the deaths that occurred were due to side effects of the inoculation itself (Dowdle, 1997; Conley, 1984; Rubin and Hendy, 1977). This, however, did not mean that the same thing could happen

the next time around, so countries all over the world were hoping for the best and preparing for the worst.

Mass media as a source of health information and an integral part in the social construction of reality and disease

"As a concept, the media include all variables connecting people into socially shared universes of understanding."

James Chesebro (1984)

In the *Handbook of Health Communication*, Kline (2003) cites some interesting statistics, according to which the average American spends about 84 hours per year reading magazines, 165 hours reading newspapers, 480 hours accessing the Internet and more than 1,200 watching television. In contrast, the average American spends less than one hour per year in a physician's office. Thus, inevitably, people get most of their health information from media. Signorielli (1993) cites several scholars who all agree that "the news media, especially the newspapers and magazines, are particularly important sources of information about health for the general public" (p.19). As Klaidman (1991) notes, it is hard, almost impossible, to separate the mass "media's influence from the variety of other influences with which it coexists" (advertising, public hearings, government publications, public relations campaigns, etc.), but the fact that "nonmedia players, such as government, industry, public-interest groups," and many others, are devoting energy and resources to place their messages in the mass media speaks loudly for their importance.

News media not only are "important agents of medical education" (Radford, 1996), but they also are the main sources that help most people develop a concept of disease through news (Ziporyn, 1988). According to Seale (2002), "it has become increasingly clear that people's responses to illness, health care and health-related behavior generally

are profoundly influenced by mass media representations." He calls these mass media representations "media health." This study uses the term when referring to media portrayals of health and disease issues.

People attend to the health information presented in the mass media. They filter this information through their own "perceptual screens" and discuss it with others, thus understanding health and disease issues "within the social process of communication, which is largely dominated by the news media" (Johnson-Cartee, 2005). As information becomes more complex, lay audiences constantly confront new issues and topics about which they know very little or nothing at all (such as the emergence of the H5N1 influenza virus). Under such circumstances, as Johnson-Cartee (2005) states, the role of the media in informing the public becomes ever more critical.

As of January 2006, half the American public had at least a fair amount of trust and confidence in the news media, compared to 37 percent in September of 2005 (CBS News/New York Times Poll, 2006). A national poll conducted by the Harvard School of Public Health Project on the Public and Biological Security (February 2006), revealed that 57 percent of Americans were concerned about the potential spread of avian flu in the United States, and that six in ten people were concerned about a pandemic outbreak of avian influenza. Additionally, 54 percent of Americans reported following the news media coverage of avian flu closely.

This study analyzed newspaper coverage of the avian H5N1 influenza virus (bird flu) and the next influenza pandemic. The period covered was from 1996, when the virus was first isolated, through April 2006, which was the end of the 2005-2006 flu season in the

United States. The study examined the way a geographically disparate sample of newspapers constructed, "told the tale," of the avian influenza and an expected pandemic.

The research project looked at the news as narratives. As Foster (1998) states, "it is essential to be aware of the biographical, historical and cultural details of the tale and its teller." However, "it is often from the very tales themselves that many of these details can be gathered." This is yet another good reason to study media health. Johnson-Cartee (2005) implies that by looking at news as narratives, we can come to "know and interpret important social indicators." Furthermore, in doing so, this inquiry contributes to understanding of "epistemology of [health] news" (Johnson-Cartee, 2005).

The study deals with one of the most important health topics at the beginning of the 21st century. No one could tell exactly when the next pandemic would occur, but the wait became more suspenseful and the threat more real with each news story about an H5N1 outbreak in poultry and with each new report of human deaths caused by the virus. Along with fears about the next terrorist attack or the next natural disaster, the fear of the next influenza pandemic was among the "plague of fears" with which people began the 21st century. Therefore, "it is all the more important that we reflect more deeply on how this 'plague of fears' gets conceptualized" (Tomes, 2002). By looking at how the press portrays these important matters of health, this study seems to enlighten not only communication scholars and sociologists, but also public health communicators (CDC, for example) whose messages the media carry to the public. This project attempts to fill in gaps in the academic and general literature in reference to newspaper reporting of influenza and influenza pandemics. In her study of newspaper coverage of the 1918, 1957 and 1968 influenza pandemics, Blakely (2001) concluded that little had been

studied about newspaper reporting of influenza, despite the common contention that "media matter," as revealed by the literature review she performed. In this context, the current study takes a look at and offers some conclusions about news narratives regarding the H5N1 bird flu virus, pandemic influenza, and public health issues in general.

Chapter 2: Research Question, Review of Relevant Literature, Methodology

The previous chapter discussed the significant role news media play in informing and educating lay audiences about health issues. Special attention was devoted to why it was important to study media health in general and media coverage of avian influenza in particular. This chapter discusses the theoretical background for such a study, looks at relevant literature and presents the methodology of the study.

The main research question that guides this project is: **How has the press constructed the bird-flu virus and the expected avian influenza pandemic in the public consciousness?** Put another way, **How has the press framed the bird-flu virus and the next influenza pandemic?** The subquestion that helps answer the main question is: What metaphors, myths, and frames are used in coverage?

Review of relevant literature

Social construction of reality and disease

The broader context within which many studies of media health are conducted, and one of the two theories to guide this study, is the critical paradigm of social construction of reality introduced by sociologists Peter Berger and Thomas Luckmann (1966). Social constructionism studies the ways individuals and groups interact and participate in the creating of their perceived realities, or as Berger and Luckmann write, "the reality of everyday life." As an approach social constructionism involves looking at the ways social phenomena are created and used. A major premise of social constructionism, on which this study focuses, is that reality is created through the social process of communication and that media play a significant role in this process (Johnson-Cartee, 2005). Along these

lines, Nimmo and Combs (1983) posit "a mass-mediated reality." Studying the role of mass media in the process of social construction has been one of the major foci of communication research (Adoni & Mane, 1984).

Long before Berger and Luckmann, Lippmann (1922) argued that "the pictures in our heads," or the images that we hold of modern society, are largely created and influenced by our exposure to and experiences with mass media rather than by direct personal experiences. According to Lippmann, political knowledge – and, for the purpose of this discussion, health knowledge - is created and largely influenced by mass media. Therefore, it is important and enlightening to study media health.

The way media portray diseases and people who are affected by those diseases is quite indicative of how a society functions (Lantz and Booth, 1998). In the words of Tuchman (1978), "news media set the frame in which citizens discuss public events," and the quality of those debates is largely dependent on the quality of information that the media provide. Tuchman states that news constructs reality rather than the other way around. To her, news is "a window on the world." This "window," however, often appears to be somehow tainted and the realities revealed through it may become rather blurry and distorted.

Mass-mediated realities, according to Lev et al. (2006), are the main sources of health information for the general public. Lev et al.'s study of cancer in the Israeli press and other studies of media health[4] have shown that these mass-mediated realities differ from the "true reality" as revealed by medical data about causes of disease, statistics regarding mortality and morbidity, facts about prevention and treatment. What is even

[4] Freimuth et al., 1984; Clarke, 1986; Clarke, 1992; Lupton, 1994; Lantz & Booth, 1998; Hoffman-Goetz & MacDonald, 1999; Clarke and Everest, 2006, etc.

worse is the fact that quite often people perceive these inaccurate mass-mediated realities of health or disease as being the ultimate truth, which, in turn, can lead to "the inability to adopt suitable health habits, delay in referral for medical treatment, or referral to inadequate/inappropriate means of treatment after the disease is discovered" (Lev et al., 2006).

Despite the useful information that studies of media depiction of health topics can provide, Seale (2002) contends that communication research has ignored the role of the media in constructing and influencing illness experiences. According to Clarke (1992), mixed with personal experiences of disease are media portrayals of that disease. Such portrayals can influence the relationships people with a disease have with their friends, families and society as a whole. Media depictions can also influence self-images and social and political roles of people who have the disease. In other words, meanings and understandings offered by the media can affect "the social worth" of the people with the disease, which was the case with media coverage of HIV/AIDS in the 1980s and early 1990s (Clarke, 1992; Cullen, 2003; Sontag, 1990).

HIV/AIDS is one disease whose media coverage has been studied extensively by scholars interested in the role of media in the social construction of disease. Researchers have concluded that one great problem of early Western media coverage of HIV/AIDS was the use of a particular kind of language. Studies have suggested that selective language can trivialize an issue or make it very important. Language can set agendas. It can stigmatize certain groups and empower others. An example is the use of metaphors, which were extensively employed by the media to help make sense of HIV/AIDS during

its construction as a new disease in the public consciousness (Cullen, 2003; Fuller, 2003; Sontag, 1990).

Metaphors in news and the social construction of disease

Sontag (1990) was among the first to study metaphors in media coverage of HIV/AIDS. A metaphor in this instance is the application of a name or descriptive expression to that which it is not literally applicable, such as "attacking the virus," "battling cancer," etc. (Foster, 1998). In her study of cancer and AIDS coverage, Sontag concluded that metaphors did not sum up the situation accurately. They were too simple and sensationalistic. They stigmatized certain people and increased fear in the general population. The most common metaphors used in HIV/AIDS coverage in the first 10-15 years were war metaphors: "battle," "invasion," "enemy." HIV/AIDS was also called "plague," a "gay plague" at that. It was an "acquired immoral deficiency syndrome;" it was "punishment for sin." Following Sontag's seminal work on metaphors of cancer and AIDS, Weiss (1997) concluded that, since these two diseases are so widely spread, their metaphors transcend all cultural, national, and geographic boundaries.

The use of the "gay plague" metaphor has been said to have had a negative influence on the public understanding of HIV/AIDS. Homosexuals, IV drug users, prostitutes were labeled as the "guilty victims" and a clear distinction was made between them and the "innocent victims" of the disease, such as hemophiliacs (who contracted the virus through blood transfusions), children of HIV positive mothers, spouses infected by their

partners, and others. The use of this "gay plague" metaphor drove a lot of criticism of the media, blaming them for causing a "moral panic."[5]

The important role of metaphors in the social construction of disease is very well discussed and explained by Rushing (1995) in his book *The AIDS Epidemic: Social Dimensions of an Infectious Disease*:

> The idea of disease as a social metaphor is the focus of the social construction perspective. This perspective stipulates that people respond to disease in terms of their definition of it, regardless of the scientific validity of the definition, which may derive from social and cultural conditions and not just biological conditions (p. 163).

Relying on Sontag's work, Rushing states that the essence of disease is both biological and epidemiological and the social construction of the disease may or may not be consistent with this definition. If people believe a disease is a punishment for those who went astray, then the social construction is metaphorical and has little in common with the medical reality. However, "if the social construction is influenced by scientific knowledge and diseases are viewed as natural phenomena, this construction is more consistent with the underlying reality." When the social construction of a disease is scientific, the influence of metaphors decreases, although it never disappears entirely. Since disease raises significant and basic questions of death and human existence, it "will probably always be controlled to some extent by metaphor, even in highly rationalized societies." As scientific knowledge about disease increases, however, social metaphors of disease lose influence, and people are guided in their reactions more by rational and neutral norms of science than by fear and social metaphor. This is what happened with

[5] The term moral panic was first coined by Cohen in 1972 and refers to a situation when an event, a person, or a group of people emerge to be defined as threats to societal values, beliefs, interest, and mores (Cullen, 2003).

HIV/AIDS as time passed and scientific knowledge about the disease and its transmission increased. Rushing summarizes by saying that

> …the scientific conception and metaphorical conceptions are cultural frameworks within which specific reactions to persons with different diseases may differ. The essential difference between the two conceptions is not that each leads to a uniform reactions that differs from the other but that one is based on empirical knowledge and scientific reasoning, whereas the other is based on cultural myths, social tensions, and moral reasons (p.187).

Despite the criticisms of media coverage of HIV/AIDS, however, media did have some positive role in constructing the disease in the public consciousness, especially when it came to breaking the taboo of silence on sexually transmitted diseases, sexual preferences and practices. Researchers suggest that this had positive influence on behaviors and on development of public health practices and policies. Furthermore, by reporting on the disease, media did keep it in the public eye and on the political and social agenda (Cullen, 2003).

Myth

Another important concept present in the news (Lule, 2001) and "everywhere sentences are turned" and "stories told" (Barthes, 1977), is that of myth. Myth became an important concept in U.S. and British cultural studies during the 1970s and 1980s. Many researchers have adopted myth to study news coverage of politics, science, terrorism, social movements, and many other topics, among which topics of health have not been present much. The role of news in the construction of scientific and historical myths has been studied by Caudill (1989, 1997) and Ashdown and Caudill (2002, 2005). Myths and their relationship with news (news as myth) as described by Lule (2001) and Koch (1990) can quite successfully be used in studying the role of media in the social construction of

disease in general - and for the purpose of this study – of avian influenza and pandemic in particular. Supportive of this contention is a statement by Lantz and Booth (1998) who point out that, in order for journalists to make "news" out of "medical issues," they "are likely to emphasize the mythical, heroic or magical power of medicine, science or technology and of their practitioners, relying on metaphors of magical power, revolution or warfare."

Place of myth in culture

The 1970s and 1980s marked (first, mainly in Europe, later on in the United States) the rapid development of media and cultural studies, which examined the relationship of mass media to culture and society. This field has been dominated by the ideas of the critical, post modernistic perspective, whose theoretical approach stresses that all knowledge is historical and contextual. Culture was defined as a "coherent set of values, beliefs, and practices that have an identifiable social location, be it the family, the neighborhood, an age or gender group, a class, or a nation" (Silverstone, 1988).

In this context, myth occupies a particular space in culture, according to Lule and other researchers who have studied myth in the news (Smith, 1979; Silverstone, 1988; Bird and Dardenne, 1988; Koch, 1990; Radford, 2003). Myth is a form of speech, very distinct in its character. Myth is marked by definable narratives, which are familiar, acceptable and reassuring to its host culture. Myth is a "sociocognitive function of narration." Most of all, myths are stories, stories as old as humankind at that. They identify a basic level of cultural experience, which is manifested in values, words and deeds throughout history. Myth embodies attitudes, beliefs and values (Sykes, 1965).

Myths are “conceptual machineries of universe-maintenance” (Berger and Luckmann, 1966).

A great number and range of scholars have studied myth. An excellent definition of myth, which also touches on its relationship with metaphors, is given by Drummanond (1984) as cited by Bird and Dardenne, whose chapter on exploring the narrative qualities of news is included in Carey (1988): “Myth is primarily a metaphorical device for telling people about themselves, about other people, and about the complex world of natural *and* mechanical objects which they inhabit.”

Sykes (1970) helps us further understand the concept of myth and its use in communication by suggesting several distinct characteristics of myth: myth conveys a perception of a whole; myth is a concise way of conveying a perception; myth is easily and universally understood. He further emphasizes the need to study myth by saying that “myth is a concept that is useful in the analysis of perception and communication, and, to this end, we need to study how specific myths are used in everyday life in our society.”

Myth in news and the social construction of disease

When speaking of culture, media, shared experiences, shared values, and traditions, we cannot help but think about the role of myth and news in sustaining culture, building on and strengthening those shared values and experiences. Just as social constructionism suggests, myths are institutionalized; they are traditional; they have been created by cultures, passed on from generation to generation, all around the world. People and cultures in different times and in different places have the same archetypes. Archetypes are original frameworks. They are what make us human (Jung, 1959). In terms of myth, they are patterns, images, motifs, and characters, taken from and shaped by the shared

experiences of human life. They are fundamental figures and forces, such as heroes, villains, plagues, great mothers, victims, and tricksters (Jung, 1959; Lule, 2001).

Lule (2001) talks about the close similarities that exist between news and myth. The "specific ways in which news itself carries myth" are discussed in the Summer 2002 issue of *Journalism and Mass Communication Quarterly*.[6] It becomes clear that myths and news are both stories repeatedly told. They are public stories, shared by the public; they help connect people; they give common topics for discussion. They are stories of public interest. They are part of the social life and bear the closest social similarities. In this context, "news and myths tell stories of healing and comfort, of righteousness and reform." They present portrayals of heroes and villains, of sorrowful victims, of great disasters that come to those who do wrong and live sinful lives. News and myth speak to a public and offer stories that "shape and maintain and exclude and deny important societal ideas and beliefs." News and myths are "moral tales; they warn of disaster and disease, of degeneracy and decay." (All these could be perfectly seen in media coverage of HIV/AIDS, especially in the 1980s and early 90s, as discussed earlier).

According to Burnham (1987), cultural mythology rather than pure science has been a theme throughout health reporting. Out of the seven myths Lule discusses, at least four could be applied successfully to coverage of health topics. The myth of the plague, for example, falls under the general category of disaster. This is what happens to people who do wrong and don't live righteous lives; people who have "strayed from the right path, according to the myth." Many diseases have been named "plagues." Along with the myth of the plague, goes the myth of the victim, which according to Lule, lies in the heart of

[6] J&MCQ 79(2), Summer 2002.

many myths. Unsuspecting people could fall victims to a disease; they might have been healthy, but then they suddenly succumbed to disease. The victim left other victims behind – family, friends who were left to deal with pain and sorrow, bemused by how unfair and unpredictable life and fate are. Coverage of HIV/AIDS made a clear distinction between victims who "deserved what they got" and "innocent victims," those who contracted the virus through blood transfusions, etc.

Another myth, which could be quite easily detected in coverage of health issues, is the myth of the "other world." Usually, this is where the disease came from. This was Africa in coverage of the Ebola outbreak in the 1990s (Ungar, 1998; Joffe & Haarhoff, 2002) and China in coverage of the 2003 SARS outbreak (Washer, 2004). In that other world, conditions are so unsanitary, health services so inadequate that people there are pretty much helpless in the face of the disease, while over here, modern science and medicine is quite capable of dealing with disease. Here, the values of progress and faith in science come to be implied in coverage.

Another important myth that could be detected in media coverage of health issues is one of the "humankind's most pervasive myths," that of the hero. Radford (2003) suggests that from 1983 to 2003, America saw its heroes cycle among a handful of archetypes: saviors (firemen and police), warriors (sports and military figures), creators (businessmen, artists, actors), victims and martyrs. Actors such as Christopher Reeve and Michael J. Fox also became heroes with their inspiring stories about battling their diseases. The September 11, 2001 attacks energized the hero myths. Reportage about the war in Iraq constantly referred to brave soldiers-heroes who died for the country, for freedom. These are media myths not in the sense that they are necessarily false, but in the

sense that they are part of a story, a narrative created in the symbiotic relationship between the popular media and the public.

This is congruent with the idea suggested earlier that, culture, in a sense, is an environment of narratives heard repeatedly until they seem to make self-evident sense in explaining human behavior. Media perpetuate such stories. Heroes in media health, apart from characters such as Reeve and Fox, could be doctors and nurses who risk their own health and sometimes even their lives for the patients' good. Heroes could be those common people who have fallen to the disease, but didn't give up on life until the moment they died. Such was the case with the British journalist Oscar Moore who died of AIDS but who wrote a column in a major UK newspaper discussing his disease until the very last day. Common people who come to the rescue of others in need, who volunteer to help the sick and the needy, could also become heroes in the news and, from there, in the eyes of the public.

Being called a hero, a villain, a victim, etc. by the media has important implications for the status of the people who are being given those names; most likely, this also influences the kind of treatment they will receive. These myths help perpetuate collective values and maintain "certain socially necessary sentiments" such as courage, brevity, pride in great people, admiration of self-sacrifice, hatred of vice, the social and technological progress made in time, etc. "These types are seen not merely as dramatic figures but collective symbols with important functions for group organization and control" (Klapp, 1954).

Just as myths are value laden, news also contains values, which are shared by the reporting and reading culture. Myths and metaphors in the news can serve as universal

framing tools, transcending time and space, translating matters into language that renders them understandable and safe to audiences. News relies on myths to present new information in old ways, within well known frameworks that can be detected in coverage regardless of the time of its origination, be it in 1918 with the flu pandemic, 70 years later with HIV/AIDS coverage, or bird flu coverage in the early 21st century.

Seale (2002), whose "media health" term has been appropriated in this discussion, also offers a variety of similar approaches to the analysis of media forms, and highlights aspects of these that are the most helpful in understanding the rhetorical effects of media health portrayals. Very similar to Lule's idea of myths in the news, Seale refers particularly to the media's deployment of a variety of oppositions to generate the entertaining tensions involved in media health portrayals: heroes and villains, pleasure and pain, safety and danger, disaster and repair, life and death, the beautiful and the ugly. He claims that such dichotomies are often used by media. Unlike Lule, however, Seale argues that this can be detected when an overview of different media health stories is considered, rather than through a focus on single stories alone.

News as narratives

This study looks at news as narratives. According to Fisher and his narrative paradigm (1984), narration is a quintessential human experience, and narration is the way societies make sense of their world. Fisher sees all communication as a form of storytelling. Lule (2001) expresses the same opinion: news, as communication, is exactly that, storytelling; much more than just information. Through various kinds of narratives (oral and written stories, anecdotes, poems, songs, etc.), humankind has passed on through the ages what it deemed important. According to Manoff as cited in Gamson et

al. (1992), “narratives are organizations of experience,” which “bring order to events by making them something that can be told about; they have power because they make the world make sense.”

To understand news as narratives, the French structuralist[7] Roland Barthes (1984) suggested a paradigm called semiology (the study of signs and symbols). It allows the narrative form of news to be described as a category of myth. Here, according to Barthes, myth describes a consistent system of narrative representation in which symbols/words have cultural and contextual relevance. “Myth is an attempt to describe the cultural context of specific human events, actions, or artifacts using a structuralist perspective.”

Koch (1990) also states that to say that news reports present a mythic, narrative system is to say that it describes signs (actions or events) that are presented through a series of cultural filters, which include values of the reporting and reading culture. (This was again quite obvious in coverage of HIV/AIDS as discussed earlier; journalists and readers shared common values, beliefs, and attitudes typical of heterosexual American society). In this context, reportage thus takes the raw events and places them in a unifying context, a translation that makes them comprehensible to readers.

Framing

In an analysis of news as narratives, and in a study of archetypal images in media health, the theory of framing could prove quite helpful, in addition to the paradigm of social construction of reality. It is through “naming and framing” that [disease] and

[7] Structuralism is an approach that became quite popular in the second half of the 20th century and has been one of the most widely used methods to analyze language, culture and society.

illness[8] are socially constructed (Brown, 1995). As Johnson-Cartee (2005) points out "framing theory is grounded within the narrative paradigm as well as the construction of social reality theory, and it accounts for the way in which political communicators utilize and construct political meanings within our society" (p.28). In order to make this statement even more relevant to the topic of this study, we can substitute "political" with "health" and still have the same valid declaration.

Initially developed by Goffman (1974), framing is a process of selective presentation of media content or public communication. Framing looks at how a certain piece of media content is packaged so as to allow certain desirable interpretations and rule out others. Many scholars have contributed to the development of framing research, including Gitlin (1980), Gamson and Modigliani (1989), Entman (1993), Pan and Kosicki (1993), Scheufele (1999), and Reese (2001). Studies on framing of various topics in different contexts have concluded that frames highlight some bits of information about items that are the subjects of a communication, thereby elevating them in salience and increasing their "psychological weight" (Johnson-Cartee, 2005). This makes pieces of information more noticeable, meaningful, or memorable. An increase in salience enhances the probability that receivers will perceive the information, discern meaning and thus process and retain it. Texts can make bits of information more salient by placement or repetition, or associating them with culturally familiar or significant symbols such as metaphors and myths.

[8] Brown, following the work of medical sociologists Freidson (1970) and Kleinman (1988), distinguishes between 'disease' and 'illness.' Illness is seen as experiencing the disease; a symptom of disease; a person's perception of having poor health. Disease is the actual condition, e.g., lyme disease, Alzheimer's disease; the flu is a contagious viral disease.

Gitlin (1980) defines frames as “principles of selection, emphasis and presentation composed of little tacit theories about what exists, what happens and what matters.” Pan and Kosicki (1993) explain framing as an approach to news discourse. Building on Goffman’s theories (1974), they refer to news discourse as a sociocognitive process involving “sources, journalists and audience members operating in the universe of shared culture on the basis of socially defined roles.” Because of this relationship between news framing and shared culture, the presentation of any type of news story is intrinsically linked to memory, culture, and collective meaning. In the words of Reese (2001), “frames are *organizing principles* that are socially *shared* and *persistent* over time, that work *symbolically* to meaningfully *structure* the social world” (emphasis in original). This supports the contention that myths, with their collective meaning, can be useful in studying press coverage and framing of diverse issues, among which is media framing of diseases. Myths can be looked at as universal frames, shared by diverse audiences, linked to memory and having collective meaning. This is what Berkowitz (2005) did with his study of press coverage of Palestinian female bombers. The study used “the archetype of the Woman Warrior” to describe coverage of female Palestinian suicide bombers, showing how mythical archetypes became “a journalistic tool” for reporting terrorism news.

A study of myths in media health could examine coverage by looking at emphasized areas and selection and keeping in mind devices that scholars believe signify the use of media framing in terms of how they might construct reality. In addition to myths/mythical archetypes, these devices include metaphors, exemplars, catchphrases, depictions and visual images (Pan and Kosicki, 1993). Whether reporting crime stories,

fires, international summits, or devastating diseases, reporters rely on their "repertoire of narrative frames" and devices that "fit the occasion." According to Stuart Hall (1984), cited by Johnson-Cartee, these narrative frames are learned by journalists first as news consumers, for "many narrative frames are archetypal, ideal types that fit various occasions within human existence."

Review of studies of media coverage of SARS and pandemic influenza

In the spring of 2003, the world witnessed an outbreak of a new infectious disease – Severe Acute Respiratory Syndrome (SARS), a disease much closer in nature to avian influenza than the other diseases discussed earlier in this study. Both SARS and avian influenza are contagious viral diseases that spread fast and can affect people all over the world, regardless of race, socioeconomic status, or lifestyles. SARS circled the world in days, infected more than 8,000 and killed 800 (Higgins, 2006). The scholarly literature lacks studies of media coverage of both SARS and avian influenza. Only three studies examining portrayals of SARS in newspapers were found. They did, however, provide the current study of avian influenza coverage with several points for analysis. Washer (2004) looked at media depictions of SARS in British newspapers. Drache and Feldman (2003) examined U.S. and Canadian press coverage of the 2004 Toronto SARS outbreak. Both studies recognize the mass media as a main source of social representations of disease. Both examine saturation of coverage of SARS in media, which led to the formation of a social construction of the risk of SARS on a global scale. There were instances of "othering" during the initial reporting of the disease, the metaphor of "otherness" referring to the Asians who were perceived to have introduced the disease in Europe and North America.

One study of particular interest examined the use of language and metaphor in the U.K. media's coverage of SARS (Wallis & Nerlich, 2005).[9] The researchers studied how SARS reporting was framed by five major national newspapers during the spring of 2003. SARS was categorized as a "global threat." Two main metaphors used to refer to SARS were "killer," which was used to discuss the characteristics and the effect of the disease ("killer virus," "deadly bug," "claims victims," etc.). The other metaphor was "control," or lack thereof, which referred to the responses to the disease ("tackle the outbreak," countries and people "faced up to SARS," etc.). Unlike previously cited studies of AIDS and cancer media coverage, where military metaphors dominated coverage, "militaristic language was largely absent." The other set of metaphors which had become largely popular in media depictions of disease, and which was also absent in UK media's SARS coverage, was the "plague" metaphor. The authors of this SARS study concluded that this shift in metaphoric representations may "reflect some characteristics of the framing of globalized issues." It will be important to note how these findings are evident, if at all, in newspaper coverage of another global public health issue of major importance – the avian and pandemic influenza.

At the end of 2006 avian and pandemic influenza was an international public health issue of major importance. Earlier that year (on May 22, 2006) the Trust for America's Health (TFAH) and the Mailman School of Public Health of Columbia University released a study assessing the "media's take on avian flu and pandemic flu." Twenty one-on-one telephone interviews were conducted with television, radio, and newspaper

[9] A fourth study looking at SARS media coverage was also found. It was an infometric study counting occurrences of the word SARS in newspaper articles in Canada, Hong Kong, China, and Belgium (Chan, Jin, Rousseau, Vaughan, & Yu, 2002), and, although informative and well-conducted, it was not deemed relevant and is not discussed here. The complete citation of the study can be found in the reference section.

journalists covering public health issues. Those journalists shared opinions that the bird flu and its pandemic potential are a "compelling story," attracting readers with notions of the "unknown," the "uncontrollable," and promises of "enormous consequences" for humankind. Reporters agreed that it was a responsibility of the media to keep people informed about bird flu developments, keeping the issue in the eyes of the public without "being alarmist or causing panic."

Another study released on May 22, 2006 by the Trust for America's Health (TFAH, 2006) looked at the quantity of media coverage of avian flu and pandemic flu from 1997 through 2005. This was not an analysis of quality of coverage. Through a Nexis search, the study obtained articles containing the words "pandemic" and "flu" or "influenza." It did not become clear, however, which newspapers were included. Figure 1 below depicts the results, showing a peak in coverage in 2005 (8,698 articles) as the virus continued to spread in birds all over the world and infect humans.

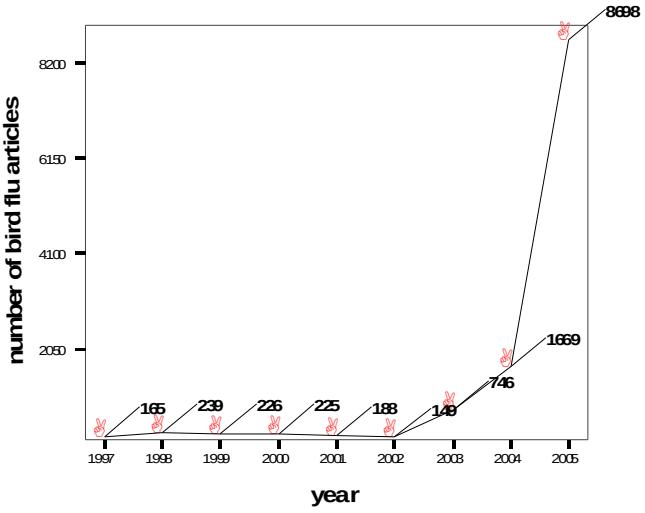

Figure 1 Number of bird flu articles, 1997-2005.
Source: Trust for America's Health (TFAH, 2006)

Gower (2006) studied newspaper coverage of bird flu from Jan. 1, 2002 through Dec. 31, 2005. He looked at 33 major U.S. newspapers listed in the Lexis-Nexis database, replicating a study by Adelman and Verbrugge (2000), who analyzed major newspaper coverage of the AIDS pandemic. They concluded that trends in coverage paralleled mortality trends, prevalence,[10] and incident rates.[11] They stated that coverage did not occur until deaths could be reported, summarizing their findings with the catchphrase "death makes news."

Gower compared Adelman and Verbrugge's findings about AIDS coverage with coverage of the potential bird flu pandemic. He concluded that reporting on bird flu greatly exceeded reporting of AIDS at a similar mortality level. Gower stated that since there were no cases of bird flu in the United States as of 2006, major newspaper coverage should not occur much. This, however, was not the case, and he concluded that bird flu was "over-reported" in 2005. He speculated that as globalization made the world seem smaller, and more countries became economically interdependent, it was in the interest of all to be informed about the virus that was expected to cause a global pandemic with great social and economic consequences. Additionally, the very nature of the bird flu virus and its pandemic potential made up for compelling news stories attracting readers with notions of the unknown and the "other world" from where the disease came. Or, simply, that media were trying to make up for the poor job they did in coverage of AIDS in the early years of the disease.

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[10] The percentage of a population that is affected with a particular disease at a given time (Source: Merriam-Webster Online (www.m-w.com).

[11] Incidence refers to how often a disease occurs. It is the number of new cases of a disease among a certain group of people for a certain period of time (Source: http://www.childrenwithdiabetes.com/dictionary/i.htm).

The only detailed study about the way the media constructed influenza pandemics in the public consciousness through framing was done by Deborah Blakely (2001, 2003), who examined how the three influenza pandemics of the 20th century were framed in the *New York Times, The Times* (London), and the *Readers Guide to Periodical Literature*, and whether coverage changed over time. According to Blakely, "influenza pandemics make a particularly compelling topic because influenza is a continuing story with worldwide impact." Blakely used a historical analysis to examine articles that were identified under the keyword "influenza" in the above mentioned publications. The study found thousands of news stories about each pandemic from the first breaking story to the end of the pandemic. Only articles that illustrated a new frame and added to the analysis were included.

Blakely used three broad frames to analyze how the social construction of influenza changed over time – narrative construction, arbiters (sources used in articles), and public health policies. She concluded that coverage of the three flu pandemics changed over time, although many frames overlapped. The 1918 pandemic was characterized by press coverage that "panicked and heightened public anxiety." The pandemic was blamed first on foreigners, then on individual lifestyles, then on government authorities' actions. Authorities were portrayed as not in control and as out of touch with one another.

Narratives about the 1957 pandemic focused on science's potential to control and cure the disease. As the pandemic spread, however, the optimism in news discourses shifted to, again, criticism of the failure of health officials to plan or time better the production of a vaccine. The effectiveness of vaccines for the 1968 Hong Kong flu was

debated among public health officials in news stories and editorials. War metaphors were used in coverage of all three pandemics.

"Biomilitaristic language" was a subject of analysis in Spratt's (2001) study on media coverage of the 1918 influenza pandemic as well. She performed a content analysis of two scientific and two mainstream publications in her attempt to answer the question of "how the selection of sources, facts, and figures shaped news messages about the Spanish Influenza." She concluded that the four studied publications – *Scientific American*, *Science*, *Survey*, and the *New York Times* – all emphasized scientific empirical data, citing expert sources and "elite groups of men" at the expense of the stories of the common people who suffered from the disease. These publications "did not simply provide facts about the pandemic, they constructed cultural narratives that supported the status quo and the authority of government and scientific sources."

Methodology

Again, the main research question to guide this study is: **How has the press constructed the avian influenza virus and the expected influenza pandemic in the public consciousness?** Put another way, how has the press framed avian influenza and the next influenza pandemic? The subquestion that helps answer the main question is: What metaphors, myths, and frames are used in coverage?

The study is informed by the work of researchers who state that myths and metaphors are some of the most widely used framing devices. Both myths and metaphors are necessary for making sense of what occurs (Lakoff and Johnson, 1980). Both can be termed "condensational symbols" because, as Johnson-Cartee (2005) explains,

"condensational symbols are a shorthand means by which large numbers of beliefs, feelings, values, and perhaps world views are telegraphed to others sharing a similar culture." The importance of myths and metaphors and their use in the news cannot and should not be ignored, hence the choice to use them in such an analysis of news discourse. Rushing (1995) identifies two socially constructed realities of a disease. One is based on "empirical knowledge and scientific reasoning" ("scientific conception") and the other is based on "cultural myths, social tensions, and moral reasons" ("metaphorical conception"). The current analysis looked at media coverage of avian influenza and determined which one of these two conceptions was present and which one dominated coverage, if it indeed did, i.e., was coverage based on science, on "cultural mythology," or both?

The study examined a sample of geographically disparate newspapers, whose full-text articles were available through the University of Tennessee Hodges Library for the period of the study (1996-2006). The articles (these included news stories, editorials, commentaries, letters to the editor, etc.) were also available in an electronic format, which facilitated the research process. The newspapers used in the analysis were all major metropolitan papers, which influenced most of coverage in the regions they were published. As a representative of the elite papers, the newspaper of record in the United States, the *New York Times* was selected. According to the Audit Bureau of Circulations (ABC), as of March 2006, the *Times* had the largest reported circulation, 1,683,855 (ABC, 2006). Full-text articles were available through the Lexis-Nexis Academic Database from 1980 to the present.

As a representative of the West Coast press, the *Seattle Times*, the "leading newspaper in the Pacific Northwest with a daily circulation of 230,000 and 500,000 on Sunday" was selected. It was also available through the Lexis-Nexis database for the period 1990 to the present. This newspaper was included also because Seattle had been said to be one of the best prepared U.S. cities when it came to a possible H5N1 pandemic response (Manning, 2006; Plough, 2006).

The *Atlanta Journal Constitution*, which was published in the headquarters of the CDC, in March 2006 had a reported circulation of 561,405 (ABC, 2006). Full-text articles were available online from 1991 to the present. Finally, the *Chicago Sun-Times* was also included as a representative of the major Midwestern press, with full-text articles available from 1992 to the present. The initial choice of a Midwestern newspaper was the *Chicago Tribune*, but it was not available in full text for the time frame of 1996-2006.

The keywords used to search these newspapers were "H5N1," "avian influenza," "bird flu" and "influenza pandemic" as found in the headlines and the lead paragraphs of the articles. Since many of the articles contained more than one or all of these keywords, the initial search in the four newspapers came up with thousands of articles. The dataset ended up consisting of 678 articles, after duplicated and irrelevant pieces were discarded.

Analysis was facilitated by the QDA (Qualitative Data Analysis) software. QDA is the range of processes and procedures which help explain, understand and interpret data, with the idea of examining the "meaningful and symbolic content" of that data (Lewis et al., 2005). The coding process mines the data for themes, ideas and categories/frames and then marks similar passages of text with a code label so that they can easily be retrieved

for further analysis. Coding the data makes it easier to search the data, to make comparisons and to identify any patters that require further investigation. Codes can be based on themes, topics, ideas, concepts, terms, phrases, keywords, etc., found in the data. The codes are given meaningful names that give an indication of the idea, concept, frame, etc. that underpins the category. This process of coding involves a close reading of the text. If a theme is identified from the data that does not quite fit the codes already existing, then a new code is created. As the dataset is read, the number of codes will increase as more topics or themes become apparent. The list of codes thus will help identify the issues contained in the dataset. It is possible to start coding with themes identified by earlier studies, theories, the researcher's feelings about the data, and/or just let new codes emerge from the dataset as it is read. Other techniques to identify themes and codes are word repetitions, key-words-in-context, metaphors and analogies, etc. (Gibbs and Taylor, 2005).

The study used some of the codes provided by Washer (2004) and Wallis and Nerlich (2005) in their analyses of media coverage of SARS (earlier epidemics, effect on economy, globalization, microbes evolving, etc). Additionally, the myths described by Lule (2001) were used, especially those most relevant to coverage of media health (heroes, victims, the other world, plagues). War metaphors and other metaphors used in coverage were identified as well. The authors of the articles were also noted, since it was interesting to see whether the media relied on specialized health reporters to cover this story, which could speak to the importance editors placed on it. Sources cited in the articles were noted, as well. Studies have demonstrated that sources are usually the ones who "frame the strength of evidence" regarding a disease and they are the ones who help

the public form an idea of the causes of a disease (or, who is “to blame” for the disease) (Spratt, 2001, Blakely, 2001 & 2003). QDA Miner can also provide graphs, charts, dandograms, and other visuals, which help summarize findings. A list of codes used in the analysis and visual representation of some results can be found in the Appendices.

Chapter 3: Findings

General findings

The keywords used to search the *Atlanta Journal-Constitution*, the *Chicago Sun-Times*, the *New York Times*, and the *Seattle Times* were "H5N1," "avian influenza," "bird flu," and "influenza pandemic." After all duplicate and irrelevant articles were discarded, the dataset used for analysis consisted of 678 articles. In the timeframe between 1996 and end of flu season 2005-2006, the *New York Times* published 342 bird flu articles; the *Atlanta Journal-Constitution* published 153 bird flu articles; the *Seattle Times* 125 bird flu articles; and the *Chicago Sun-Times* published 58 bird flu articles (See Appendix C). The years with the most bird flu news stories were those when bird flu activity was more pronounced (See Appendix D). Reports increased as more human bird flu cases and deaths were emerging: 1997 (40 articles), 1998 (46 articles), 2004 (125 articles), 2005 (275 articles), and 2006 (164 articles). "Death makes news" indeed, as Gower (2006) concluded in another analysis of bird flu stories (See Appendix E).

In general, the *New York Times* and the *Atlanta Journal-Constitution* had more detailed, longer articles dedicated to bird flu than did the *Seattle Times* and the *Chicago Sun-Times*. The first two newspapers also had dedicated health reporters who were covering the bird flu beat. Bylines of M.A.J. McKenna and Jeff Nesmith followed the majority of bird flu related articles in the *Atlanta Journal-Constitution*. The *New York Times* bird flu beat seemed to belong to Keith Bradsher who was reporting from Asian countries where bird flu had hit: China, Laos, Cambodia, Hong Kong, Thailand, and Vietnam. Elizabeth Rosenthal was reporting on bird flu activity from Europe, and Lawrence K. Altman seemed to be the newspaper's doctor-on-staff who was dominating

reporting on bird flu and pandemic related issues in the United States. Gina Kolata, a well-known *New York Times* science reporter, also published on occasional article here and there.

The *Chicago Sun-Times* had quite a few stories that bore "The Chicago Sun-Times" byline or the "Sun-Times Wires" byline. However, when significant bird flu related events were occurring, the *Sun-Times* had various staff reporters covering those either from the "place of action" abroad or within the United States. The *Seattle Times* had several medical reporters and various other staff reporters covering bird flu related stories. A great number of articles bore the "Seattle Times staff and news services" byline. Many bird flu stories in this newspaper were published under the broader sections of "Around the Globe/Around the World" and "Daily Briefing," and included a short paragraph or two on bird flu among other news stories of the day.

All the newspapers published pieces written by various scholars, scientists, researchers, medical and public health professionals and officials, writers, and politicians. These pieces tended to be published in the Editorial/Letters sections of the newspapers. A total of 55 pieces published in the Editorial sections of the four newspapers referred to bird flu and a potential influenza pandemic.

Frequently cited sources in bird flu and pandemic coverage were Centers for Disease Control and Prevention (CDC)'s Director, Dr. Julie Gerberding, Health and Human Services (HHS)'s Secretary Michael Leavitt, and his predecessor Tommy Thompson, who left the position in 2005. Other frequent sources of relevant information were Dr. Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases, Dr. Jeffrey Taubenberger, chief of the molecular pathology department at the Armed Forces

Institute of Pathology in Washington. Doctor Klaus Stohr, a top influenza expert for the World Health Organization (WHO), WHO's spokesman Dick Thompson, and CDC's top influenza experts Dr. Nancy Cox and Keiji Fukuda, were also often quoted. Additionally, articles presented quotes from affected lay people from all over the world where mass chicken slaughters were destroying people's livelihoods, businesses were suffering, and people were dying from bird flu.

This study was a qualitative survey of press coverage of the bird flu virus and a potential pandemic rather than a detailed analysis counting words and column inches. With the help of QDA Miner the researcher attempted to abstract information from the articles in a standardized manner (See Appendix F). The articles were presented in a chronological order to make it easier to follow the development of the bird-flu story. Every article was read by the researcher, but, following Debra Blakely's methodology, not every paragraph in every article was discussed. Only those illustrating major developments/news, a new frame or adding strong support to existing frames were included in the discussion.

The H5N1 bird flu virus first appeared in a farm goose in China in 1996. None of the four newspapers reported that event or discussed a potential pandemic in detail. Only the *New York Times* published a short piece on Nov. 17, 1996 mentioning that the world was overdue for another global pandemic "*which occurs when a virus's genetic makeup suddenly changes.*" According to the *Times'* source (a physician), "the only question is when and where and how bad it will be."

1997 Coverage

From one in 1996, bird flu related articles increased to 43 in 1997 when the first human H5N1 infections surfaced in May in Hong Kong. This incident was not mentioned in the press until Aug. 20 when the *Seattle Times* published the following paragraph in its "Around the World" section:

> Boy dies from bird flu found in humans for 1st time
>
> HONG KONG - A 3-year-old boy died after contracting an influenza strain that has never before been seen in humans, Hong Kong said today.
> Laboratories in Hong Kong, the United States, Britain and Netherlands identified a specimen collected from the boy's trachea as carrying a virus called "influenza A of H5N1 strain," previously found mainly in birds. The government said *there is no vaccine.* The unidentified boy died in Hong Kong's Queen Elizabeth Hospital in May.

On August 21, 22, and 23, the *Atlanta Journal-Constitution* also announced the discovery of the bird flu virus and the death of the child in Hong Kong. The article "CDC to probe *deadly flu strain*; Virus common to birds *kills* boy in China" by M.A.J. McKenna (Aug. 21, 1997) stated that this never before seen virus and its appearance in humans posed great concern to health authorities. The article reported that CDC had already sent a team to Hong Kong to investigate and had already found that no other human cases had occurred there. The article explained why this bird flu case was of concern. References to the three flu pandemics of the 20th century (1918, 1957, and 1968) stressed why the flu should be "the kind of thing that has to be watched for." The article helped clarify why Americans were just now hearing about the bird flu virus and its lethal qualities: it took the CDC and European labs about three months to identify the H5N1 virus since its first appearance in humans in May.

An article published on the next day (Aug. 22, 1997), again in the *Atlanta Journal-Constitution*, reassured readers that other human cases were not identified in Hong Kong.

The public was informed that the H5N1 bird flu strain infected predominantly birds and its "*jump*" directly to humans was "highly unusual." It became known that experts were "*concerned about influenza's potential to develop without warning into worldwide epidemics, which has happened three times this century*." The article said that "*it is absolutely certain that another pandemic will occur, and highly likely that it will emerge in Asia, the historic home of the flu virus*." Hence, the early call for global mobilization of scientific, financial and public health forces:

> "We must devote as much effort and as many resources as necessary to draw up a defensive strategy and a battle plan for dealing with what could be a potential catastrophe," Dr. Robert G. Webster, chief of virology and molecular biology at St. Jude Children's Research Hospital in Memphis, said in the Journal of Infectious Diseases.

The next day's article ("Boy's death stumps experts;" Aug. 23, 1997, *Atlanta Journal-Constitution*) was a wire story consisting of three short paragraphs within the "World in Brief" section reaffirming previously reported information and referring to the bird flu virus for the first time as "*mysterious*." The bird flu was not going to be reported again until October.

Several major characteristics of early bird flu coverage surfaced in these first articles and continued to appear in later coverage. The italicized quotes from the articles above introduce the following frames typical of coverage of the bird flu virus and a potential avian influenza pandemic: the bird flu virus is a deadly killer taking the lives of innocent victims; the bird flu virus is mutating, evolving, and already jumping species; there is no vaccine against this strain; it is only a matter of time that a pandemic will occur; earlier epidemics and crises are often referred to in coverage. All these themes create a sense of fear and present the readers with yet another health scare. To this list of frames detected in early bird flu coverage we can add "blame" and the myth of "the other world" – Asia

was already being framed as the place where the next pandemic would start. This early coverage also introduced the uncertainty and mystery surrounding the virus. The militaristic language (war metaphors), which would come to dominate news coverage, was also apparent in these first reports: the war on the deadly H5N1 killer had already started in 1997 and, at the end of flu season 2005/2006, it was still failing to proclaim a definitive winner. Finally, these early articles above introduced scientists, virologists, microbiologists and other researchers as one of the major sources quoted in bird flu articles. As the bird flu virus continued to claim animal and human lives, which, in turn prompted increase in coverage, these early frames were confirmed and enriched and new ones started to appear.

An *Atlanta Journal-Constitution* article published on Oct. 12, 1997 gave the readers very detailed information, with photos and charts, about the flu virus, its genetic structure, its ability to mutate easily, its transmissibility, and its pandemic potential. In addition to the "earlier epidemics/crises" frame, the "microbes/viruses evolving" frame, and the "health scare" frame, this article introduced a new frame called here "personifying the virus." This is when human qualities are ascribed to the virus, such us "smart virus," "clever," one that "reinvents itself every year, one that "has figured out how to change its nature and its genome to keep surviving," one that "likes to keep us on our toes." Again, these quotes were from a CDC scientist whose job was to "tracks genetic differences in the virus." A military metaphor used in the article (the flu virus as a "wily adversary") helped further describe the "physiognomy of the flu" ("The Flu Hunters;" Nov. 7, 2004; *New York Times*).

The next set of articles on the H5N1 bird flu virus appeared in December 1997. By then more than a million chickens in Guangdong Province were "wiped out by the virus," and four people were infected, two of which had died ("Avian flu strain spreads to humans;" Dec. 9, 1997; *New York Times*). The article quoted Hong Kong and U.S. scientists expressing increasing concerns about a global flu epidemic. This was the first article to use a word, which well described then and still did ten years later, the expectant bird flu pandemic – "hypothetical." China was again designated as the most likely origination of such an epidemic. It was again mentioned that there was no existing vaccine against this "killer" virus and the virus's virulence made it very difficult to design a vaccine:

> This virus is very toxic. It kills cells very quickly, so in killing the cells, you can't get enough to work on. We found that southern China was the virus epicenter. The 1968 Hong Kong flu pandemic had its origins there, in Guangdong Province. [Dr. Kennedy Shortridge, a professor of microbiology at the University of Hong Kong]

Less than a week after this was published, the human cases of bird flu had risen to seven, and Hong Kong began shutting down some of its largest wholesale poultry markets so that cleanups could be performed to restore the public confidence in poultry ("Today's news;" Dec. 15, 1997; *Atlanta Journal-Constitution*). On the next day, the first calls for preparation for a flu pandemic began to appear; this introduced yet another frame in press coverage – "preparedness" ("Public health officials keep close watch on new flu;" Dec. 16, 1997; *Atlanta Journal-Constitution*). Robert Webster, a leading expert on flu in animals, investigating the virus in Hong Kong was quoted saying: "We have to prepare for it. There have been enough cases that we have to prepare in case something happens." More military metaphors described the "behavior" of the virus: it had never attacked humans before; it mutated constantly and this was what made it so easy to

"evade the immune system's protection." The article left no doubt that the CDC and WHO would be the leaders in this fight against the H5N1 bird flu virus:

> CDC staff have been in Hong Kong for a week and are not expected to return until after Christmas. They are conducting surveys and drawing blood samples from health-care workers and family members of the victims. The samples are being analyzed at CDC and other international flu centers in London, Melbourne and Tokyo; the effort is being coordinated by the World Health Organization in Geneva.

Another article published on the same day introduced concerns about the virus's ability to transmit from person to person, since for the first time several members of the same family were sickened ("Suspicions growing on spread of new flu strain;" Dec. 16, 1997; *Atlanta Journal-Constitution*). Two children - a 2-year-old boy and a 3-year-old girl - cousins of an already sick 5-year-old child - were being hospitalized. The article also reported on the first meeting of a committee drawn from nine government departments announcing "measures to combat the virus" among which were increasing surveillance and detection capabilities, improving hygiene in restaurants, bird markets and meat stores. The article announced that "many Hong Kong people buy their chicken live or freshly slaughtered from warehouse-like markets." This Asian practice would become frequently repeated in coverage and very characteristic of the picture that the press was portraying of "the other world" – the place from where the disease was coming.

On Dec. 17, 1997, media began reporting that, according to the CDC, the Hong Kong flu outbreak was meeting two of the three conditions necessary for a pandemic to occur: it was a new bird virus and it had mutated so that it infected humans. The third condition, efficient person-to-person transmission, which would help the virus cross national borders and spread around the world, was still missing. According to the article, this third condition was added after the 1976 swine flu epidemic provoked intense public

concern but then unexpectedly died out and failed to materialize ("Flu strain alarms experts; Rare Hong Kong virus could bring worldwide epidemic, CDC says;" Dec. 17, 1997; *Atlanta Journal-Constitution*).

Faced with pandemic fears, as human infections had risen to ten, public health authorities had began "implementing a pandemic plan that was accepted internationally after 700,000 people died in the last pandemic in 1968." The first step called for the development of a vaccine against the new strain of flu, since the available vaccine offered no protection against it. The article told readers that broad-scale vaccine production usually took four to six months, and a major hurdle needed to be overcome by vaccine makers who used fertilized chicken eggs as a growing medium for vaccine development. The fact that the new bird flu virus was extremely lethal to chickens, killing them within two days of infection, complicated the task tremendously. The article described several alternative ways of vaccine production still in early experimental stages.

As the bird flu story in Hong Kong continued to develop, articles became longer, more detailed, with some human interest touches to them, and painting rather gruesome pictures of chicken slaughter, which had become necessary to slow down or stop the spread of the virus. An article in the *New York Times*, "Chicken-borne flu virus puts Hong Kong on Alert," published also on Dec. 17, introduced a local man who had been working for 40 years at one of Hong Kong's poultry wholesale markets:

> Chow Hoi, his T-shirt splattered with blood, shuffled across the puddled cement floor in blue rubber slippers, plunged his hand into a wooden cage squawking with chickens and yanked out a dead bird**,** which he flipped on the floor. Then another. And another. Around him, dead chickens littered the cement where a couple of dogs snored indifferently. Black plastic bags filled with dead chickens were piled by the open-air entrance to the sour-smelling Tai Fong Sing Lan chicken wholesalers.

Chow was portrayed as helpless and quite worried, calling the situation "uncontrollable" for a thousand chickens had died in front of his eyes since the beginning of the day. Yet, the article affirmed that the public health authorities were doing their part to investigate the virus and prevent a possible flu pandemic:

> Meanwhile, detailed genetic testing of the virus found in seven victims has been done by the C.D.C. in Atlanta. Thousands of blood tests, hundreds of interviews and throat cultures of relatives and acquaintances of flu victims have been taken in an effort to determine the precise transmission of the virus.

There was yet another mentioning of China as the source of the new virus strain. The "porous border" that Hong Kong shared with the rest of China[12] made it possible for thousands of chickens to be smuggled into Hong Kong daily. As a matter of fact, the article "As avian flu spreads, China is seen as its epicenter," published in the *New York Times* on Dec. 21, could not be more blatant. There, Dr. Kennedy Shortridge, the microbiologist from the University of Hong Kong, who had "spent much of his two-decade career in Hong Kong examining the ecology of flu viruses in southern China," declared that "China is the principal reservoir for influenza, and southern China is the influenza epicenter." The article detailed the Chinese "ancient agricultural practices and the current system of farming in Guangdong province, the source of much of Hong Kong's food." Also, the article mentioned how the fact that people in most southern Chinese villages lived in close proximity with ducks, chickens, and pigs, made it easy for influenza viruses to exchange genetic material, mutate, and move among species. The article concluded with Shortridge preparing his laboratory, "a room of black-topped benches, pipettes, bottles filled with solution, computers, refrigerators and incubators to analyze H5N1." This introduced yet another frame frequently seen in bird flu coverage,

[12] Hong Kong was formerly a British colony, but was reverted to Chinese control July 1, 1997.

the one depicted through the help of the myth of the hero. In the fight against the H5N1 virus, heroic scientists were on the front lines, working tirelessly with hazardous materials to protect the health of the public.

Bird flu coverage in December 1997 indicated that the H5N1 virus story was developing with a great momentum. A 13-year-old girl's death from the virus was reported on Dec. 22 ("Flu toll reaches 3 in Hong Kong;" *New York Times*), which prompted WHO to come up with statements about "enhanced surveillance." A fourth death was reported in Hong Kong on Dec. 24, which brought the total statistics to 12 cases with four people dead, two recovered, and the rest hospitalized. As the virus continued spreading, Hong Kong announced an indefinite ban of all chicken imports from China. Responding to allegations that China had been keeping silent about H5N1 developments there, the state-run TV station was reported to have quoted a Chinese public health official saying that inspections of chicken farms had failed to find any cases of the virus ("4th Death in Hong Kong Linked to Poultry Flu," Dec. 24, 1997; *New York Times*).

In the meantime, in Hong Kong, more mysteries surrounding the H5N1 bird flu virus emerged as scientists continued "scrambling for the flu's secrets." One of the doctors who cared for the 3-year-old child, who was the first to die from the virus, had contracted the virus himself. Scientists were puzzled that the rest of the 54 hospital workers who were in contact with the child did not get infected. With only one exception, neither did the family and friends who were also in contact with the child ("Avian flu transmitted to doctor, officials say," Dec. 27, 2007; *New York Times*). All these developments were taking place around Christmas, and CDC researchers and other scientists, "instead of

dipping into eggnog" were working around the clock to find a possible explanation of the virus's peculiar behavior.

In order to try to stop the spread of the virus among chickens, on Dec. 29, the Hong Kong government announced plans to kill all chickens in the territory, which amounted to more than 1.2 million ("Chickens killed in Hong Kong to combat flu;' *New York Times*). The government was sending "a small army of workers" on a mission to exterminate chickens on farms and wholesale and retail stalls. This "mass slaughter" was the only way for the government to "strike back" and "combat" the virus.

In the meantime, the *New York Times* was reporting a quarantine of 14 live-animal markets in New York City because inspectors had found chickens infected with the "relatively common" H7N2 flu virus. The article made it clear, however, that this was not cause for alarm and that it had nothing in common with the new, lethal H5N1 bird-flu virus, no cases of which were yet reported in the United States ("Influenza virus is found in live chickens for sale; Dec. 24, 1997). Another article that tried to make the issue more relevant to U.S. readers was published in the *Seattle Times* on Dec. 30. The article, titled "Poultry farmers in state concerned about flu treat; Washington health experts say threat of transmission from Hong Kong visitors to local flocks appears slight," discussed how the Washington state poultry industry was worth billions of dollars a year in local sales and exports. The article featured a local poultry businessman who had clients in Hong Kong and who was worrying that when they came to visit his farm, they might bring the virus with them. The article stated that "exposure of local birds to the virus could be disastrous." No other way of introducing the virus to the United States was suggested in the article. The state veterinarian for the Washington Department of Agriculture,

however, was quick to assert that "State health officials run an influenza surveillance for humans, gathering data from select clinics, nursing homes and physicians, and tracking school absenteeism rates to monitor influenza in this state," and that similar surveillance existed for influenza in poultry.

As talks of a next influenza pandemics were gaining momentum, the *New York Times* introduced its readers in greater detail to the case of the "1976 Swine Flu Fiasco" ("When a novel flu is involved, health officials get jumpy;" Dec. 30, 1997). In 1976, after about 250 soldiers at Fort Dix, N.J., were infected with swine flu and after only one death at the fort, President Ford, fearing a pandemic like the 1918 outbreak, and acting on the CDC's advice, ordered every American to be immunized against the swine flu. Forty million people did so before the program was halted due to a number of people developing paralyses after being vaccinated. The feared swine flu pandemic never materialized and the virus died out on its own, not because of the vaccine. This case would become very characteristic of the "earlier epidemics/crises" frame and later on would be frequently used as an example in coverage of federal officials' overreacting to pandemic warnings. However, in order to drive home the uncertainty and unpredictability surrounding the flu virus, and in order to better explain why false alarms were often seen and well justified when it came to predicting a pandemic, the article compared influenza outbreaks to a hurricane – one of the first instances in coverage when disaster metaphors were used to refer to the influenza virus and pandemic:

> Tracking influenza outbreaks and changes in viral strains is a bit like tracking hurricane. Forecasters use radar and other technologies to spot embryonic hurricanes in one locale and then monitor their every zig toward shore and zag away from land.
> As hurricanes threaten, officials broadcast warnings to evacuate homes. But many skeptical residents stay put, sure that the alarm will be just another case of crying wolf. To be sure, the skeptics are often correct because most hurricanes peter out without causing major

damage. But a hurricane occasionally devastates an area.

The last day of 1997 had newspapers reporting on the Hong Kong government's official announcement that chickens imported from mainland China were the probable source of the bird-flu outbreak and that mainland farms were the next to be inspected for the H5N1 virus ("Hong Kong to inspect mainland farms for bird-flu virus;" *New York Times*). This last story further confirmed in the world's mind China's blame for the emergence and spread of the lethal H5N1 bird-flu virus.

Several frames characteristic of U.S. press bird-flu and pandemic coverage emerged in these early stages of the virus's spread. First of all, the virus was localized to "**the other world**," which was represented by Hong Kong and China. The myth of "the other world" was beginning to take shape and would be further developed in later coverage. The flu virus was given its own **personality** and was depicted as a lethal, cunning, smart killer that was constantly **mutating and evolving** and was hard to capture and confine. **Military metaphors** were widely used in coverage: armies of public health officials, scientists and researchers were being drawn into a war with a new and lethal adversary. The virus was surrounded with a cloud of **mystery, uncertainty and unpredictability**, which made it quite a compelling topic for the newspapers. Despite the fact that the virus was active only in Hong Kong, thousands of miles away from the United States, this early press coverage introduced the American readers with yet another infectious-disease **health scare**. Despite frequent reports of bird-flu activity in Hong Kong and despite regular mentionings of an influenza pandemic caused by this virus, things at this point, for the American reader, somehow seemed rather distant and abstract. The frame of "**preparedness**," although not too pronounced yet, also surfaced in this early coverage.

Another emerging frame was "**vaccines/drugs**." No vaccine for this virus existed and it would be extremely difficult to produce any if a world epidemic would start. **Effects** of the virus were also being reported often: Hong Kong consumers were staying away from chicken, which had led to a 70 percent drop in poultry sales; Hong Kong tourism industry was suffering as well, despite the fact that WHO did not see a reason to restrict travel. Finally, reports included the **victims** of the virus, predominantly young, innocent children.

1998 Coverage

Nineteen ninety-eight was rather uneventful for the H5N1 bird-flu virus. In January, reports about the Hong Kong government's "sloppy" handling of the chicken slaughter began appearing. Articles were reporting that dogs, cats, and rats had been seen eating killed chickens, which prompted fears that they might had gotten infected with the virus. Lack of manpower and proper equipment were often cited as the reasons behind the government's efforts to exterminate the chicken population in the Hong Kong territory. Statistics spoke of the great scale of the effort: in three days 1.3 million chickens had been killed. However, the main message of coverage was that the spread of the H5N1 bird-flu virus had slowed and it was not being transmitted efficiently among people ("Rats, cats and dogs being tested for flu – officials worry after Hong Kong animals eat dead chickens;" Jan. 2, 1998; *Seattle Times*).

With the spread slowing, "hard news" reporting deaths and infections gave way to more feature stories in U.S. press coverage. One such story was published by the *New York Times* on Jan. 13 ("Hunt in sealed lab seeks deadly secrets of bird flu"). This story made a good use of the myth of the hero, the heroes being scientists in CDC labs studying

the deadly virus, risking their health and lives in the name of the public good. They were described as "working at a breakneck pace to head off future crises." They are portrayed as working in "cumbersome attire and conditions," wearing blue protective suits, with booties on their shoes, with plastic shields protecting their faces, working in labs with filtered air and no bathrooms:

> Like many of her colleagues, Dr. Kanta Subbarao, a top influenza scientist at the centers, has worked on the virus every day except New Year's since late November. About five and a half hours is the longest that she has worked at a stretch in the laboratory because of the cumbersome attire and conditions. For example, scientists generally avoid drinking coffee or fluids before entering the laboratory because it has no bathroom.

Making great use of war metaphors, the article mentioned that the risky research those scientists were performing was "vital to the swift public health response to the threat of bird flu," and a "continuing scientific battle." That heroic research would help the development of new vaccines, which were "the main public health defense against influenza."

Despite two new deaths from bird flu in Hong Kong ("Sixth death from bird flu announced;" Jan. 15, 1998; *Atlanta Journal-Constitution*; "Disease sleuths unraveling Hong Kong virus; Flaw revealed; 2 more die of flu;" Jan. 16, 1997; *Atlanta Journal-Constitution*), newspapers were reporting a significant slowing down of the virus's activity. The search for the virus's origin, the study of its structure and transmission were presented through a new set of "race metaphors" where scientists were racing the virus to catch it, or at least slow it down before it reached its goal and attacked again. An article published on Jan. 16 in the *Atlanta Journal-Constitution* announced that scientists had come up with the first genetic analysis of the H5N1 virus done on samples taken from the first human victim in Hong Kong, the 3-year-old boy who died in May 1997. The article

stated that "while the pace of the Hong Kong flu outbreak has slowed, disease detectives are beginning to catch up with the virus that caused it." The analysis was being published in the journal *Science* and the lead author was that same CDC scientist, Kanta Subbarao, who was the "hero" portrayed in the *New York Times*' feature peace quoted above and published three days earlier. The analysis, however explained only why the virus was so lethal in chickens, but did not provide any clues about the way it infected humans and a possible human-to-human transmission. However, as one article summarized it in an explicitly militaristic language, "the war against the Hong Kong flu may not be won, but for now, science seems to have fought it to a draw" ("Still battling the bird flu;" Jan. 25, 1998; *Atlanta Journal-Constitution*).

Despite earlier criticisms of the way Hong Kong handled the mass chicken slaughter, an article published on Jan. 31 praised those very efforts for averting an epidemic ("Hong Kong chicken slaughter credited with averting epidemic;" *Atlanta Journal-Constitution*). This article talked about a different kind of victims – the millions of chickens which were "sacrificed" in the name of preventing a global outbreak of bird flu. In February the press reported that Hong Kong had ended its ban of imported live chickens from China. Additionally, WHO announced that it would not proceed with plans for vaccine production against the H5N1 bird-flu virus since there was little evidence the virus had spread beyond Hong Kong.

1999 – 2002 Coverage

This period had only 12 articles relevant to the bird flu virus and an influenza pandemic. There were four articles in 1999, two in 2000, five in 2001, and one in 2002. Although not much was going on with the killer virus, media did have some occasional

reports, which kept alive the fear of a possible influenza pandemic. The press made it clear that research on flu viruses was always taking place and scientists were continuing their quest for "deciphering the secrets of one of the deadliest viruses ever known, the influenza virus of 1918." On Feb. 16, 1999 an article published in the *New York Times* announced the findings of a research team led by Dr. Jeffrey Taubenberger of the Armed Forces Institute of Pathology in Washington ("Scientists uncover clues to flu epidemic of 1918"). Taubenberger and colleagues had analyzed lung samples from three people who had died in 1918. They obtained the samples from two bodies found in a military archive and from a partly frozen corpse of a woman buried in the permafrost in Alaska. The analysis showed that the virus's genes were "perfectly ordinary," disproving the popular hypothesis that the 1918 virus had jumped directly from birds to people. It appeared that there was no "obvious genetic reason why the virus was so lethal," and most likely "it was something about the circumstances, like the crowding and troop movements of World War I that caused the deadly epidemic." All this was giving the readers "some degree of comfort because it's very unlikely that all these things could happen again."

Later that year announcements of another team studying the 1918 virus were published. It appeared that the 1918 Spanish flu had not really been forgotten after all, at least not by scientists. This time researchers lead by Dr. Kirsty Duncan were studying tissue from victims' lungs, kidney, liver and brain ("Bodies yield clues to 1918 pandemic;" Nov. 17, 1999; *Atlanta Journal-Constitution*). In the meantime the press was informing the public that in Hong Kong there existed a fully functional international influenza-surveillance center where continuous "vigilance in humans and animals" was taking place. Sleep tight, world, virologist are on watch ("Hong Kong center is key in

controlling influenza; Disease strains under constant surveillance;" Aug. 17, 1999; *Seattle Times*).

Coverage in late 1999 and early 2000 introduced Gina Kolata's new book *Flu: The great Influenza pandemic of 1918 and the search for the virus that caused it*, and emphasized how important it was to study that virus. By often referring to that 20th century global epidemic, the health scare surrounding a next possible influenza pandemic was kept on the public's mind as the new millennium began:

> None of the analyses done so far has solved the central mystery of the 1918 epidemic: how the virus was able to kill so quickly, usually in days, and why it was most lethal in healthy young people who are usually in the least danger from flu. That knowledge is vital, not just to solve a longstanding medical mystery, but because health authorities fear that the world is overdue for the appearance of a similarly virulent strain. Understanding the 1918 epidemic, among the worst known to history, could provide the molecular equivalent of an early-warning system for detecting the next one.
>
> "Mice provide clues to 1918 killer flu; Scientists attempt to crack virus code;" Feb. 27, 2001; *Atlanta Journal-Constitution*

On May 19, 2001 the *New York Times* suddenly reported that Hong Kong was slaughtering chickens again to halt the spread of yet another H5N1 outbreak in poultry. Unlike the previous H5N1 virus, however, this one did not appear to affect humans. No human deaths were reported and there was not much coverage either until September when articles in the *New York Times* and *Seattle Times* announced the findings of researchers at the University of Wisconsin-Madison. The findings did not seem to present anything groundbreaking, but revealed that a tiny change in a single gene caused the 1997 Hong Kong H5N1 virus to be so lethal. This further supported how "frighteningly easy" it was "for a new flu strain to evolve into a pandemic and kill millions of people worldwide." The *New York Times* article also reported that the H5N1 virus had been detected twice that year in Hong Kong but that time around it did not infect any humans.

The rest of the 2001 articles were recollections of the 1997 bird flu outbreak in Hong Kong and how it "shocked" scientists and world public health authorities ("Gain in hunt for how a flu turns lethal;" Sept. 7, 2001; *New York Times*; "Tiny gene mutation turns flu pandemic; Experts dig for clues of deadly viruses;" Sept. 7, 2001; *Seattle Times*).

Overall coverage in the period 1999-2002 continued to make use of several of the already established frames. The flu virus was still presented as mysterious, always mutating and evolving. A next potential influenza pandemic was framed in terms of the earlier flu pandemics, mainly the Spanish flu pandemic of 1918. Scientists and researchers continued to be on the forefront in a "scientific battle" with the virus and on the watch for flu outbreaks. The sense of fear evoked by the health scare frame continued to find its way in coverage, as well. The only new frame introduced with the single article published in 2002 was the frame of **"terrorism/bioterrorism."** A sentence in an *Atlanta Journal-Constitution* article published on Sept. 20 referred to avian influenza as a pathogen which could be used in agricultural bioterrorism ("Food supply vulnerable to attack; Agricultural bioterrorism a threat, panel says"). This was not surprising since, after the events of Sept. 11, 2001, terrorism and bioterrorism became frequent topics on the media and public agenda.

2003 Coverage

Suddenly the H5N1 bird-flu virus was back and it had caused more human deaths. This time the virus hit a whole family from Hong Kong which had gone to China's Fujian province to celebrate New Year with relatives. While in China the 8-year-old daughter fell sick and died in a hospital there. After the return of the family to Hong Kong, the 33-year-old father and the 9-year-old brother also died. The rest of the family had been

hospitalized. Media were reporting that the misfortune of this Hong Kong family coincided with “a continued and little explained outbreak of pneumonia” that had killed at least six people and left hundreds ill in the adjacent Chinese province of Guangdong. It was reported that the Chinese state media in Guangdong made no mention of the illness until Feb. 10 (“Man's death of bird flu in Hong Kong raises fears;” Feb. 21, 2003; *New York Times*). CDC scientists said that the virus which killed the father and son was H5N1, but was not exactly the same as the 1997 H5N1 virus, which reinforced again the idea of quick and easy mutation of the virus. They did not have enough information to tell how similar or different those two viruses were. Again, scientists were quoted saying that there was no vaccine against this strain but here, for the first time, antiviral drugs were mentioned as effective if administered early enough (“Human death from bird flu stirs alarm; Hong Kong case recalls '97 outbreak; Feb. 21, 2003; *Atlanta Journal-Constitution*). The health scare continued as WHO alerted health officials around the world to increase their surveillance and preparedness. Thus, the frame of **“globalization/call for global action”** began to take shape in coverage.

In the meantime, a new disease appeared. On March 16, an article in the *New York Times* introduced the American reader to the Severe Acute Respiratory Syndrome (SARS):

> As a mysterious respiratory illness spread to more countries, the World Health Organization yesterday issued a rare health alert, declaring the ailment "a worldwide health threat" and urging all countries to help in seeking its cause and control.
> The agency said that in the last week it had received reports of more than 150 new suspected cases of the illness, now known as Severe Acute Respiratory Syndrome, or SARS. The syndrome has caused at least nine deaths, the last one a nurse in Hanoi. Some victims have recovered but no one has been up, around and healthy in the past two weeks. It apparently does not respond to antiviral and antibiotic drugs.
>
> “Rare health alert is issued by W.H.O. for mystery illness”

Reports of SARS cases were coming from Canada and six countries in Asia - Hong Kong and elsewhere in China, Indonesia, the Philippines, Singapore, Thailand and Vietnam. This was confirming in the public's mind that, to rephrase Shakespeare, something was rotten in the state of China (and Asia as a whole), further reinforcing the myth of the other world, which was already present in coverage. Initially, scientist suspected that H5N1 was causing all these cases but tests could not detect the bird flu virus. Now another new bug was out there already crossing national borders. Questions about the SARS cases being caused by an instance of bioterrorism also surfaced in coverage.

SARS did not reach the United States, but there were reports about bird flu outbreaks in farms in Connecticut and California in March and April of 2003. The strain was not the virulent H5N1 and was infecting only chickens. Articles discussed economic consequences stemming from the slaughtering of thousands of chickens and the illegal practice of cockfighting in the United States ("Avian flu raises concerns on economy; March 23, 2003; *New York Times*; "Payments for fighting cocks bring criticism;" April 22, 2003; *New York Times*).

In April and May, reports began appearing about the spread of avian flu H7N7 in chickens in the Netherlands, Belgium and Germany, which all were responding by slaughtering millions of their chickens. Bans on poultry and eggs from these countries became in effect immediately. Troubling reports about the death of a 57-year-old Dutch veterinarian from the H7N7 virus and evidence for its transmission between humans were reported, as well ("Belgium: Disease Halts Poultry Exports;" April 17, 2003; *New York Times*; "Bird flu in humans alarms health authorities;"

April 25, 2003; *Atlanta Journal-Constitution*; "Germany: Bird flu confirmed;" May 14, 2003; *New York Times*).

On May 12, in the aftermath of the SARS outbreak, the *New York Times* published an editorial by Ezekiel Emanuel, an oncologist and bioethicist, calling for enhanced surveillance and increased preparedness to "develop and put in effect a strategy that tries to prevent future SARS-like outbreaks now." In this editorial China was openly blamed as the source of SARS and other previous epidemics:

> China was the source of SARS, or severe acute respiratory syndrome. During the last century it has been the source of new viruses and strains behind other pandemics. The Great Flu Pandemic, which swept the world in 1918-19, killing 20 million to 40 million people, most likely originated with an influenza virus in China. Both the 1957 Asian flu and the 1968 Hong Kong flu also originated in that region and caused mini-pandemics.
>
> "Preventing the Next SARS"

This editorial went further, and was one of the first articles to describe a more detailed picture of that **"other world"** – China:

> Virologists say one reason China is the source of so many new viruses and new strains of old ones causing respiratory infections is that people and animals there live in close proximity. Birds shed the influenza virus in their stool, and pigs that eat from the ground can absorb bird viruses. Pigs can harbor both human and bird viruses, creating an environment in which genes can be exchanged, leading to new strains of old viruses or new viruses that can infect and kill humans. And people who live in densely populated housing can easily pass new viruses to their neighbors. This combination of population density and proximity of animals makes China particularly susceptible to cross-species contamination. This animal-human cohabitation seems to account for the great influenza pandemics of the 20th century. While it is too early to tell definitively, many virologists think human-animal virus mixing may be at the root of the coronavirus that causes SARS.

In addition to increased surveillance and preparedness, the author also called for changes in animal husbandry and slaughtering practices, which gave the readers some more information about life in China:

> In China, pigs and other domestic mammals are often raised in the same pens or near chickens and wild birds. Separating these animals is important. In addition, animals are frequently slaughtered to order in restaurants, and families slaughter birds for

> meals at home. Restricting slaughtering to processing plants that segregate pigs from birds, with inspections to enforce hygienic standards, is key. Slaughtering in restaurants and the keeping of birds in private homes should be prohibited.

In addition to the fact that "traditions surrounding cuisine and food preparation can be barriers to better hygiene," other glimpses of Chinese reality provided in this editorial included the fact that millions of people there lived in houses with less than 40 square feet per person, and how by contrast the average college dormitory room in the United States had approximately 150 square feet per person. Europe and the United States were given as examples of how improvements in housing and sanitation practices contributed to vast improvements in life spans even before the development of vaccines, antibiotics and other modern medical technologies.

In conclusion, the author of this editorial opined that "through globalization we can all be threatened by what happens in China and, therefore, we all have an interest in these changes." He called for a global response to the global threat of deadly viruses stating that "China should not have to bear this alone."

As the end of 2003 was approaching, it became even clearer that influenza was "arguable the most unpredictable of viruses" ("The big bad flu, or just the usual;" Dec. 14, 2003; *New York Times*). This brought to mind questions about the difficult role of public health to protect the people. Protecting the public against influenza was said to be "a tricky balancing act," because it involved a number of factors such as "inadequate scientific knowledge of the virus; educated guesswork in choosing what strains of influenza to include in each year's vaccine; time-consuming, old-fashioned manufacturing techniques; and skills in communicating with a skeptical public." The article criticized the federal government for not talking and doing much about new strains

of influenza. The story brought to light the ironic fact that despite government health officials' repeated warnings about the inevitability of another influenza pandemic, government had yet to "approve final plans to counter such a disaster." This article introduced two new frames in bird flu and pandemic coverage: **"communication issues"** and **"criticism."**

The final piece of 2003 dealt with bird flu in South Korea. A short paragraph in the *New York Times* using militaristic language in both literal and figurative ways described how the prime minister had "mobilized troops in an effort to contain a highly contagious strain of bird flu." Troops would "establish check points and help slaughter and bury poultry ("World Briefing Asia: South Korea: Troops against bird flu;" Dec. 19, 2003). The war against avian influenza was picking up.

2004 Coverage

On January 14 the *Atlanta Journal Constitution*, in explicitly militaristic language reported that, in response to new human deaths from the H5N1 bird-flu virus, "international health authorities have been deployed to Vietnam to arrest a virulent strain of influenza that has jumped from birds to humans, killing possibly 12 people - 11 of them children - and decimating chicken flocks in Vietnam, Japan and South Korea" ("Bird flu kills people in Vietnam"). To slow down the new outbreak, Vietnam banned the sale of poultry in its biggest city, Ho Chi Minh City, formerly Saigon ("World Briefing Asia: Vietnam: Chicken banned in bird flu outbreak;" Jan. 16, 2004; *New York Times*). Throughout the month of January, Vietnam continued to report human deaths, mainly among children ("Around the World: More possible bird-flu cases in Vietnam;" Jan. 16, 2004; *Seattle Times*; "5th death from avian flu;" Jan, 19, 2004; *New York Times*).

The news stories made it clear that the "victims" were believed to have become infected by some contact with chickens, but not through eating chickens or from eating eggs.

As the H5N1 virus continued to spread in chickens and humans around Asia, the WHO announced that labs in its network had begun using newer genetic techniques to develop a human vaccine against the strain circulating in Asia ("Bird flu kills 5 in Vietnam and fears rise over its spread;" Jan. 21, 2004; *New York Times*). Developing a vaccine, however, was a "complex process." There were many hurdles for scientists on their way to developing an effective vaccine. Since the H5N1 strain killed chickens, scientists could not use chicken eggs in the initial stage of making the vaccine, as they did for human strains of influenza virus. Instead, scientists were using a newer technique knows as "reverse genetics." In the best case scenario, a new vaccine was going to be developed within a month, but then it would have to pass numerous safety tests in animals and humans before mass production began. Then, scientists would have to determine how many injections a person would need to be protected. Additionally, the manufacturers' interest in making the vaccine would have to be determined as well ("WHO seeks vaccine for new bird flu;" Jan. 23, 2004; *New York Times*).

While newspapers were reporting on the hardships surrounding the timely production of an effective H5N1 vaccine, reports about new human cases in Thailand appeared, deepening the fears of a global epidemic "if the virus combines with another that can be transmitted from person to person." Additionally, Cambodia confirmed that chickens there had been dying from bird flu, and Laos reported suspected cases, as well. Amidst all this heightened bird flu activity in Asia, China was continuing to deny having

any cases of bird flu ("Thais infected with bird flu**;** Virus spreads;" Jan. 24, 2004; *New York Times*).

To further complicate the situation, it now appeared that the H5N1 strain which was spreading in Asia was resistant to one of the two main classes of drugs used to fight influenza viruses. This "less expensive class of anti-influenza virals" included amantadine and rimantadine. There was still some hope left, though. The virus was "believed to be susceptible to the costlier class of anti-influenza drugs known as the neuraminidase inhibitors, where Tamiflu (oseltamivir) was the leader ("Avian flu said to be resistant to a main flu-fighting drug;" Jan. 25, 2004; *New York Times*).

With the spread of bird flu to Pakistan by the end of January, newspapers were calling the outbreak a "massive Asian epidemic of avian influenza," which had "erupted to an unprecedented degree." These developments were "massively frightening" and had driven the international medical community to a state of high alarm ("Asia fights an epidemic: Killer bird flu rampant;" Jan. 27, 2004; *New York Times*). On Jan. 28 the *New York Times* reported that finally China was breaking its silence and announced that avian influenza had been found in fowl in three regions. The article pointed the readers' attention to the fact that the presence of the disease in this 1.3 billion-people country, with a huge poultry industry, increased the risk that the virus might start to spread to humans more effectively. The article also commented on how China's insistence until that time that it had no cases of the disease was reminiscent of the country's reluctance the previous winter to acknowledge the first cases of SARS and keep those "hidden from the world for four months" ("China finds birds with virulent strain of flu in 3 provinces;" Jan. 28, 2004; *New York Times*). This lack of transparency on the part of China and its

attempts to cover up the SARS outbreak in 2003 would come to be another quite frequent frame in coverage.

To placate the American audience in light of all these developments in Asia, newspapers announced that there were no signs of U.S. cases. The CDC, which had activated its 24-hour Emergency Operations Center to track the expanding epidemic, was assuring the American public that the disease had not crossed the U.S. borders. CDC's director Dr. Julie Gerberding promised vigilance and enhanced surveillance ("Chinese confirm bird flu presence; Jan. 28, 2004; *Atlanta Journal-Constitution*). The "threat to Americans" was said to be "virtually nonexistent." This, however, did not diminish the "distant danger" of someone being simultaneously infected with a bird flu and a human virus, allowing the viruses to swap genes in a way that would make the new bird virus highly transmissible among humans who would have no natural immunity against it. Again, it was noted that China's "foolish mistake" in hiding the initial SARS outbreak was being repeated again by its being slow to acknowledge the problem with bird flu and engage in control efforts ("The spread of avian influenza;" Editorial; Jan. 30, 2004; *New York Times*). Blaming China continued as the British journal *New Scientist*, quoting experts, contended that "bird flu began in south China during 2003 and escalated into the present epidemic because of a combination of official cover-up and questionable farming practices" ("Bird flu spreads in China;" Jan. 31, 2004; *Atlanta Journal-Constitution*).

The "distant danger" of person-to-person transmission of bird flu came closer in February 2004. Several family members who attended a wedding in early January in Vietnam fell sick with the virus. The 31-year-old groom and two of his younger sisters died. The bride became ill but recovered and was the only survivor in this cluster of

cases. After investigating the cluster, Vietnamese and WHO epidemiologists found a link between two of the cases and contact with chickens or ducks, but not for all four cases. With no other explanation, health officials could not exclude the possibility of person-to-person transmission for two of the cases ("Human spread, a first, is suspected in bird flu in Vietnam;" Feb. 2; *New York Times*).

As human deaths in Vietnam and Thailand continued to occur in early February, and as chickens and wild birds continued dying from the bird flu throughout Asia, the United States announced a ban on importing birds and bird products from the eight Asian countries where there had been outbreaks of avian influenza. Outbreaks of bird flu at farms and chicken markets in Delaware and New Jersey were being reported in the United States, but the virus there was not the same as the virulent H5N1 and was reported to be not hazardous to human health ("Officials say avian flu poses no threat in New Jersey; Feb. 13, 2004; *New York Times*).

China continued to be mentioned with articles asking "What is the true state of the disease in China?" It was referred to as "the enigma at the heart of the epidemic." When it came to China, what scientists feared most was the mixing of influenza strains that would combine the severity of avian influenza with the contagiousness of the human strain. The globe's most populous nation, the home of one of the world's largest poultry industries, and a historic source of new flu viruses, China was regarded as "the prime setting where that mixing could occur." Another major concern was that while China had disclosed outbreaks in poultry in 14 of its 31 provinces, it had steadfastly maintained that the vast country had no human cases of the disease, which many experts accepted with skepticism after China covered up the initial SARS outbreak. They suggested two

scenarios that would explain the state of the disease in China - either recognized cases were being concealed, or China's internal infrastructure was so fractured that illness had occurred and not been recognized ("China's bird flu claim suspect; Health officials doubt report of no human cases;" Feb. 15, 2004; *Atlanta Journal-Constitution*).

In the meantime, in February and then in March, reports on bird flu outbreaks in the United States continued. A strain of avian flu was found on chicken farms in Texas and Maryland. The strains in the United States were not the same as the lethal H5N1 killing birds and humans in Asia. Towards the end of March, in Asia, outbreaks had started to subside but governments there were "poised to declare victory over avian influenza." World health officials had the "persistent fear" that if high contagion were added, the virus could spread with "unstoppable speed, creating a world pandemic." Compared to the devastation of the HIV/AIDS epidemic, which in 25 years had killed 40 million people, a flu pandemic seemed to be able to do a similar damage "easily in six months" ("Vigilance urged in bird flu fight; Crisis not over, nations warned;" March 24, 2004; *Atlanta Journal-Constitution*). WHO was now issuing repeated calls for governments to stockpile anti-virals, enhance their surveillance systems, and make sure that "developing countries would not be closed out of access to protective measures if a pandemic began."

The months of April, May, and June did not witness much developments on the H5N1 front, except for several reports about more H7 bird flu outbreaks in Dallas and British Columbia. Also, scientists were making some progress with the development of a vaccine through the new reverse genetics technology, which was going to undergo preliminary trials by the National Institutes of Health by the end of the year. In July, reports about yet another H5N1 bird-flu outbreak in Thailand and China resurfaced.

Michael Osterholm, founder of the Center for Infectious Disease Research and Policy at the University of Minnesota and an adviser to the then Health and Human Services Secretary Tommy Thompson was quoted as saying that in his “almost 30 years in public health” he had never seen anything else that “could bring us closer to the edge of a major international catastrophe, including HIV" (“Experts fear pandemic as bird flu returns; Viruses could merge: If human, avian infections combine, deadly global outbreak could be worse than AIDS; July 18, 2004; *Atlanta Journal-Constitution*). The article cited the alarming fact that at that point the worldwide production capacity of flu vaccine manufacturers was about 250 million doses per year insufficient to protect even the U.S. population. The “enduring bird flu problem” had to be made a “global priority” because there was “no hope of eliminating it.” International health authorities tracking the spread of the bird-flu H5N1 virus across Southeast Asia “reluctantly concluded” that they would “have to be permanently on guard against the pathogen’s potential morph into a severe human disease that could move quickly around the world” (“Scientists debate bird flu controls;” Aug. 8, 2004; *Atlanta Journal-Constitution*).

As world scientists and health authorities were discussing ways of controlling the virus, reports of more new human deaths in Vietnam appeared (“Bird flu kills three in Vietnam; Officials fear disease will spread worldwide;” Aug. 13, 2004; *Atlanta Journal-Constitution*). To make the situation even more alarming, a Chinese senior health official disclosed that a lethal strain of avian influenza had been found among pigs at several farms. Scientists had long regarded pigs as an important vector for new influenza strains to infect people (“Lethal strain of avian flu is reported found in pigs in Chain;” Aug. 21,

2004; *New York Times*). China continued to be singled out for its vague and secretive behavior and criticized for not disclosing information:

> Responding to a disclosure on Friday by the China National Avian Influenza Reference Laboratory that it had found the A(H5N1) strain of avian influenza in the pigs of at least two farms, the Agriculture Ministry said in a statement that it had tested "some" pigs this year and did not find any infection. The ministry did not confirm or deny the findings of the government-run laboratory, which is part of the China Academy of Agricultural Sciences. The statement did not say how many pigs it had tested, and the ministry's press office did not respond to calls for comment.

In the United States, in response to the threatening spread of the H5N1 bird-flu virus, the Bush administration issued the first national plan detailing how the United States should prepare for and respond to an influenza pandemic. The plan was said to be a broad outline of crucial public health measures such as emergency production of vaccines, the stockpiling of antiviral drugs, limiting of public gatherings and the possible imposition of quarantines. Many complex practical and ethical issues needed to be worked out before anything in the plan became final. Some of those were questions regarding stockpiling and deciding who would get the antiviral drugs and vaccines, which would be “in heavy demand but scarce supply in such a catastrophe” (“U.S. issues its first plan for responding to a flu pandemic;” Aug. 26, 2004; *New York Times*).

The plan had been in the making since 1993 and among other things called for increasing manufacturing capacity so that vaccines could be produced more quickly. It also stressed that state and local health departments must begin pandemic planning, which had been overshadowed by preparations for bioterrorism. The major controversy surrounding the plan, media reported, was that it dealt with a hypothetical event of a pandemic and opened “the possibility of spending tax and private dollars far in advance

of any event" ("Plan a call to arms for flu pandemic;" Aug. 26, 2004; *Atlanta Journal-Constitution*).

In the meantime, reports that the H5N1 virus had jumped species again appeared. On Sept. 3 the *New York Times* reported that Dutch scientists had found the lethal strain in cats. This was an "extraordinary" finding because cats were generally considered to be resistant to influenza infections. According to Juan Lubroth, a senior animal health officer at the United Nations' Food and Agriculture Organization, this discovery had important implications for human and animal health and introduced a need to monitor and investigate the possible role of cats and other animals in the spread of avian influenza among poultry farms and to humans ("Study finds bird-flu virus can spread among cats").

As the lethal virus continued to jump species, Thailand reported its first possible human-to-human transmission. A 26-year-old woman was the most recent death. She had cradled her dying daughter in her arms for 10 hours at a hospital in northwestern Thailand, where she later fell sick and died herself. The question that stood before Thai and international health experts was whether the mother was killed by a strain of the virus that had evolved to a greater capacity for transmission among people ("Bird-flu deaths in Thailand raise new fears;" Sept. 29, 2004; *New York Times*).

In the event of a looming global influenza pandemic, the absence of a tested vaccine and the scarcity of antiviral drugs were described as representing the "chronic mismatch of public health needs and private control of production of vaccines and drugs." Discussions about the vaccine market and manufacturing began appearing in coverage. There were no great incentives for companies to go into vaccine research. Production was expensive and investments might not be returned if a pandemic did not occur. Also, the

standard method for making flu vaccines - growing virus in chicken embryos - did not work because the H5N1 virus was so deadly that it killed the developing chicks before they could grow enough virus to be worth harvesting. The new techniques that needed to be employed altered the strain's genetics so it could be grown in the fertilized eggs. The intellectual property rights for these new techniques were not yet settled, which further alienated companies. Another issue was the companies' concern about liability if they put out a new vaccine without performing lengthy safety tests first. The only two large vaccine manufacturers that were trying to deal with these issues and use the new genetic techniques to develop vaccines against the bird flu, were Aventis Pasteur, based in Swiftwater, Pennsylvania, and the Chiron Corporation, based in Emeryville, California. And, they were proceeding only with contracts with the National Institutes of Health (NIH). Articles made it clear that in the absence of a vaccine, the only option left was the antiviral drug Tamiflu, which was expensive and would work only if it was given in the first two days after the onset of symptoms. Tamiflu was made only by Roche Holding, a Swiss company, at a single small factory in Europe, but the company sought to expand its manufacturing capacity by building another production line in the United States ("Experts confront major obstacles in containing virulent bird flu; Sept. 30, 2004; *New York Times*).

The "vaccines/drugs" frame continued to be present in coverage especially after the announcement that British health regulators had suspended operations at the Liverpool factory of the Chiron Corporation, the world's second-largest manufacturer of influenza vaccines. This created a shortage of the seasonal flu vaccine, disrupted immunization plans in the United States and Europe, and "caught American health officials by

surprise." In that case Chiron failed to deliver to the United States the promised 46 to 48 million doses of vaccine. This left the Unite States with only 54 million doses made by Aventis and up to 2 million doses of a nasal spray vaccine. This prompted again discussions about the need to reform and modernize the entire approach of vaccine manufacturing and doubts that the U.S. Federal Drug Administration (FDA) was not scrutinizing drug makers closely enough ("A flu vaccine fiasco;" Oct. 6, 2004; Editorial; *New York Times*; "Vaccine delivery in trouble; Critics call for more suppliers using new technology;" Oct. 10, 2004; *Atlanta Journal-Constitution*).

All this was occurring when the H5N1 was advancing in Asia and this contributed further to the anxiety of U.S. and world health authorities. Frequent reports on the vaccine shortage and what it meant in case a pandemic were to start, added to the health scare and fear surrounding the bird-flu virus and a potential influenza pandemic. In addition, coverage continued to report on the mysteries around the H5N1 virus. The pattern of human infections was a mystery. Many who had contracted the virus had been small children who lacked any kind of immunity, or simply were closer to the ground and more likely to breathe the exhalations or feces of diseased birds. The tens of thousands of Vietnamese workers who carried out the mass chicken slaughters in that country often did that with their bare hands, without protective suits and masks. Despite the lack of precautions, not one of the 10,000 workers involved in the culling had had a confirmed case of the disease, according to Vietnamese and WHO officials. Those Vietnamese workers were not vaccinated against human influenza, much less bird flu, and they were not taking prophylactic doses of Tamiflu. Basically, the title of one article summed it up quite well: confronting avian flu was "a war and a mystery" ("A War and a Mystery:

Confronting avian flu;" Oct. 12, 2004; *New York Times*). Also, this article illustrated well the frame "personifying the virus:"

> Once the A(H5N1) virus infects a person or pig, it acts a bit like a burglar trying to pick a lock with trillions of possible combinations. Like a burglar, it essentially has two options: try every combination, or find someone or something that already has much of the combination figured out.
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> The virus has been promiscuously sharing genetic material with other avian influenza viruses since the mid-1990's, generating many hybrids that are especially likely to infect new species, said Dr. Guan Yi, a virologist at Hong Kong University.
>
> These viruses have a lot of opportunities to have affairs with other viruses. The more widely the virus circulated in birds and people, the greater the probability that it would unlock the secret of spreading among people.

Among the many scientists who were trying to outsmart and catch the burglar virus were the "flu hunters," Dr. Keiji Fukuda and Dr. Tim Uyeki – top CDC influenza specialists. Fukuda, in particular, had been a major figure in bird flu coverage ever since the 1997 Hong Kong outbreak. In an almost 7,400-word piece, on Nov. 7, the *New York Times* profiled the two scientists as heroes circling the globe in their attempts to study and stop the advancement of the H5N1 bird-flu virus:

> Uyeki and Fukuda are 21st-century epidemiologists, and their job is not an easy one. They see themselves first and foremost as scientists. But in a globalized world where peripatetic germs hitch rides in the lungs or luggage of unwitting airline passengers, where sick chickens in Asia can threaten to topple third-world governments, where the role of politics and money can obscure the free flow of medical information, they cannot do their job -- preventing the spread of deadly flu viruses -- by being scientists only. They are medical monitors sitting at their desks, reading e-mail messages, Web sites, faxes and reports in order to track the varieties of flus in the United States and around the world. They are investigators who are prepared to jump on a plane to an outbreak site -- if invited -- and delicately interview the families of flu victims, trying to piece together how and why particular people fell ill and what the implications are for the rest of us. And less formally, they are diplomats, lobbyists, policy advocates, pressing for measures that governments would often prefer not to embrace.
>
> *"The flu hunters"*

As coverage about the certainty of another influenza pandemic increased, a new frame **"response in event of pandemic"** started to take shape. On Nov. 30 Dr. Shigeru

Omi, the WHO's regional director for Asia and the Pacific, was quoted saying that if a pandemic should strike, an outcome, which according to him was "very, very likely,' governments should be prepared to close schools, office buildings and factories to slow the rate of new infections. They also should work out emergency staffing to prevent breakdowns in basic public services such as electricity and transportation ("WHO official says deadly pandemic is likely if the Asian bird flu spreads among people;" *New York Times*). Such articles illustrated the seriousness of the bird-flu problem and December reports of new human cases, now in Japan, reinforced the concerns and fears surrounding the H5N1 avian influenza virus ("Tests identify the first human case of avian influenza in Japan;" Dec. 23, 2004; *New York Times*).

2005 Coverage

The year began with reports about new vaccine clinical trials that were to begin in April, warning, however, that approval could take years. There were also reports about increased global demands production of Tamiflu, as nations "geared up for the threat" of an influenza pandemic ("Bird flu vaccine tests to start in April;" Jan. 25, 2005; *Atlanta Journal-Constitution*). Vietnam, which was among the most severely hit by the new wave of H5N1 bird-flu, was appealing to the world for help to fight bird flu ("Vietnam is seeking international assistance to fight bird flu:" Feb. 3, 2005; *New York Times*). As the "highly pathogenic avian influenza" was sweeping through Cambodia, China, Indonesia, Japan, Laos, Malaysia, South Korea, Thailand and Vietnam, "killing humans, wiping out entire flocks of chickens and spreading fear," the press began criticizing the international community for failing to provide enough money to help Asia deal with the bird flu, stating that "the threat of an influenza pandemic transcends the capacities of any

individual nation or region" ("When influenza takes flight;" Feb. 5, 2005; *New York Times*).

In April, President Bush signed an executive order authorizing the government to impose a quarantine in case of an outbreak of "a particularly lethal variation of influenza now found in Southeast Asia." Amidst this pandemic preparation process, and all the "ominous signs" coming from Asia, articles began asking whether "we all should be stockpiling Tamiflu" (April 5, 2005; *New York Times*). Readers were advised to "resist that urge," despite the fact that Tamiflu was being regarded by everyone "as a powerful tool in the global medical arsenal." Ben Schwartz, a pediatrician and infectious disease specialist with the National Vaccine Program Office in Washington, was quoted saying that a "hefty national stockpile made sense in ways that a personal stockpile didn't." This was so because first, drugs in a national cache were stored under ideal conditions and regularly checked to make sure pills close to their expiration date are still potent, while the same drug in the medicine cabinet of a humid bathroom could quickly lose its effectiveness. Second, governments usually got discounts, and prices at a local pharmacy could well go up to $65 to $100 for a five-day prescription for Tamiflu. Thirdly, the issue of drug resistance should be considered seriously, and people were advised to be as careful with these drugs as they were with antibiotics.

The word "ominous," which the Merriam-Webster Online (http://www.m-w.com/) defines as "having a menacing or threatening aspect," connoting "forewarning of calamity," and "foreshadowing evil or disaster," was an adjective used quite often in coverage of bird flu and a potential avian influenza pandemic. In attempt to draw attention to this global threat, the scientific journal *Nature* devoted its May 26 Issue

(Volume 435, Number 7041) to that “unprecedented threat,” which was covered by the *Atlanta Journal-Constitution* (“Bird flu threat urgent, medical journal says;” May 26, 2005). Despite heightened scientific, governmental and public health activity, coverage carried a loud message by doctors, scientists and politicians that the United States remained “woefully unprepared for an influenza pandemic that could kill millions of Americans” (Experts fret over flu pandemic; U.S. plan for avian threat incomplete;” May 27, 2005; *Atlanta Journal-Constitution*).

Some words of reassurance were evident in coverage, however. In June, Dr. Anthony Fauci, head of the National Institute of Allergy and Infectious Diseases said that the feared pandemic was not going to happen in 2005. He, however, was warning against complacency staying that "the danger is that people will say, 'OK, we dodged that bullet, let's move on to the next problem.” But doing so would be a mistake with a lethal virus such as the H5N1 bird-flu virus, which “of all the infectious diseases ever in the history of humankind…is the lion king." This article kept the health scare and fear alive in readers’ minds by quoting numerous scientists talking about the great effects of avian flu pandemic, which in 18 months might kill 1.7 million Americans and 360 million people worldwide. The news story painted the dire picture when, in an outbreak, the United States would run out of caskets in a few days, and crematoriums would be jammed with corpses. Hospitals would be swamped and would be useless to most victims, and improvised clinics would be set up in schools and gymnasiums. The country’s some 100,000 hospital ventilators would not be enough and it would take years to produce several hundred thousands of additional ones (“Flu outbreak could wreak global havoc; Scientists warn against complacency;” June 17, 2005; *Atlanta Journal-Constitution*).

In the meantime, pharmaceutical companies were reported fighting over the rights to avian flu drugs, an article in the *New York Times* wrote on June 24. Gilead Sciences, which invented Tamiflu, and Roche, which made and sold the drug, were in dispute about property rights, which threatened to affect the already limited supply of Tamiflu at a time when countries were actively trying to stockpile it ("Partner companies fighting over rights to avian flu drug").

Coverage in the months of July and August continued to reinforce the health scare and the notion of fear surrounding the H5N1 bird-flu virus and pandemic influenza. Among scary statistics of possible deaths and huge economic and social impacts, the main message echoing through coverage was that the world and the United States were not prepared to handle a pandemic should it occurred then. In the meantime the virus was causing more human deaths in Asia. Scientists were predicting that next the virus would appear in Europe being carried on the wings of migratory birds ("Migrating birds may carry flu from Asia; July 7, 2005; *Atlanta Journal-Constitution*).

In August the H5N1 bird-flu strain appeared in Russia with media reporting that chickens were being slaughtered in Siberia to prevent the virus from spreading further. In the United States, the Bush administration was trying to decide who would take the lead in an influenza pandemic – the Health and Human Services (HHS) of which the CDC was a part, or the Department of Homeland Security. Homeland Security's Secretary Michael Chertoff "claimed that his agency would get that overall responsibility." The press, however, questioned the logic behind such an arrangement and stated that:

> Given the gravity and complexity of the health issues that accompany a pandemic, agencies such as the U.S. Public Health Service and the Centers for Disease Control and Prevention must take the lead in securing the country's safety. The Atlanta-based agency has worked closely with the World Health Organization to monitor the spread of the bird flu strain,

> which thus far has infected 112 people and killed 57 in four Southeast Asian countries. Moreover, it already has the expertise and framework needed to gather and analyze the most accurate and up-to-date information from public health officials in the 50 states. If and when it comes time to make hard calls about where to muster resources, it will be the CDC's expertise that government calls upon.
>
> "A job for the experts; Federal health agencies, not Homeland Security, should take charge if avian flu epidemic strikes U.S."
> Aug. 26, 2005
> *Atlanta Journal-Constitution*

Then, on Aug. 29, Hurricane Katrina hit and the nation's attention was taken away from the bird flu for a little while. Hurricane Katrina was the deadliest natural disaster to ever hit the United States. It was also the costliest, with estimated losses of at least 1,863 human lives and more than $81 billion in damage. The way governments responded to this disaster was widely criticized, resulting in a federal investigation and the resignation of the Federal Emergency Management Agency (FEMA)'s director Michael Brown.

The Hurricane Katrina crisis joined the several other crises in the frame "earlier epidemics/earlier crises" that were referenced in coverage of the H5N1 bird-flu virus and the next potential influenza pandemic. Referring to the serious blows on the federal government's reputation and credibility caused by its poor response to Katrina, media echoed opinions that trust in government had plunged and, when it came to pandemic preparedness, only specific goals and procedures were going to cut it and probably boost public trust. Giving in to political pressure from Democrats, President Bush began addressing more often a possible pandemic outbreak at his conferences assuring that his administrations was taking it "very seriously." As an article in the *New York Times* put it "Washington politicians were so spooked by the government's abysmal response to Hurricane Katrina that they have worked themselves into overdrive about preparing for a

possible influenza pandemic" ("Fortresses against flu;" October 11, 2005). Another article termed this "the latest post-Katrina effect," citing Irwin Redlener, director of the National Center for Disaster Preparedness at Columbia University ("Fear of flu outbreak rattles Washington;" Oct. 5, 2005; *New York Times*). In this context, not surprisingly, the Bush administration released in October yet another, more detailed draft for copying with a pandemic ("U.S. not ready for deadly flu, Bush plan shows;" Oct. 8, 2005; *New York Times*).

The plan called for stockpiling antiviral drugs and increasing domestic vaccine production capacity. It acknowledged, however, that under emergency conditions, supplies in industrialized countries would not be enough to meet the requests for help from poor countries. The *Times* expressed the concern that, in a time of crisis, a refusal to share vaccines "would create a humanitarian and diplomatic disaster, driving hatred of the West to new levels among the poor." In a good use of militaristic metaphors the *Times* stated that "the best defense against a pandemic may lie far from our own shores," adding that "in their rush to barricade against this uncertain threat, leaders of the developed nations need to make sure that they don't slip into a fortress mentality that protects the home folks while letting an epidemic break loose in Asia and rage through the developing world."

In the meantime reports about the H5N1 bird-flu virus reaching Europe, as predicted and expected, began appearing. October saw cases in poultry flocks in Turkey, ducks in Romania, and a parrot in London. In October, President Bush announced he would consider using military force to enforce quarantine in the U.S. if it was necessary to prevent the spread of an influenza outbreak. Also in October, U.S. researchers, lead by

Dr. Taubenberger of the Armed Forces Institute of Technology, recreated the 1918 virus that killed tens of millions and confirmed the fears of many, namely that this was "a bird flu [virus] that jumped species and attacked humans." This particular news, for someone who had carefully followed media reporting on bird flu and influenza pandemics until then, might have sounded contradictory, and in fact it was so. In 1999, as it was also reported earlier in this study, the *New York Times* announced that the same doctor and his colleagues concluded that the 1918 virus was more closely related to viruses that infect pigs and they ruled out "a direct avian origin." Now, six years later, the conclusion was just the opposite, but the article did not bother to mention that fact and offer any clarifications or explanations ("Hazard in hunt for new flu: Looking for bugs in all the wrong places;" Nov. 8, 2005; *New York Times*). Both articles were written by Gina Kolata, and one would have expected that a senior science reporter, one very familiar with the 1918 flu topic at that, would have done a better job at presenting that news.

Other bird-flu developments in October included Japanese scientists' reports about an infected with the H5N1 strain Vietnamese girl who had developed resistance to Tamiflu ("Flu timeline; Oct. 23, 2005; *Atlanta Journal-Constitution*). Also in October, the maker of Tamiflu, Roche, started to receive international pressure to allow production of generic versions of Tamiflu, and agreed to start negotiations with foreign governments and companies ("Pressure rises on producer of a flu drug;" Oct. 11, 2005; *New York Times*; "Roche offers to negotiate on flu drug;" Oct. 19, 2005; *New York Times*).

The "other world" China was still very much present in coverage, still being labeled as a "big flu risk" with its large poultry flocks and huge population. What China was doing to manage a possible epidemic was termed "a mystery." Chinese government and

public health authorities were still being criticized for not sharing virus samples from infected wild birds. Although no human cases were yet reported in China that was expected because of the close habitation of humans and animals. China repeatedly was described as the “incubator of global epidemics that start in rural areas and then spread around the globe by way of Hong Kong, which has Asia's busiest airport for international departures.” Readers were regularly reminded that SARS in 2003 and the Hong Kong flu epidemic in 1967 and 1968 each reached the world that way (“Poultry power: China, with huge flocks, is at big flu risk; Oct. 18, 2005; *New York Times*).

It was also in October when two other representatives of “the other world” appeared in coverage. The Oct. 12 *New York Times* article “In time of bird flu overseas, live dinner beckons in Queens” introduced the readers to an “other world” within the borders of the United States – the world of immigrants -“Latinos, Asians, Africans and West Indians, along with the occasional Russian and Italian” - who had brought their seemingly “outdated, even barbaric demand for fresh meat” to the American “processed-and-packaged world”:

> It may come as a surprise to those of us who think that chickens emerge from the egg already quartered, wrapped and chilled, but many people in this cosmopolitan city -- many, many people -- prefer to look their chicken dinners square in the eye, give the nod, and wait for the slaughter. When customers leave the store with fresh meat in hand, tiny feathers cling to the soles of their shoes.

The article described quite colorfully the live-poultry store of Mr. Raghoo, which contained not only chickens ready to be slaughtered for dinner that night, but also rabbits, guinea fowl, sheep and a goat. The proud owner simply stated that he was just serving the community adding that "coming from a third-world country, that's a way of life: having fresh meat. It has a certain flavor to it, and that's what people want."

With the migratory birds flying towards Africa, this continent became the next "other world" depicted in coverage. Africa was described as "completely unprepared, lacking both the money and scientific infrastructure to control virus outbreaks." People in poor African nations were said to live in close proximity with animals, which would provide conditions for mixing of the bird and human viruses ("CDC chief treads lightly with flu news; Oct. 20, 2005; *Atlanta Journal-Constitution*).

As October was coming to an end, this was what was known (or not) about avian influenza:

> It may savage the global human population, or it may restrict itself to savaging the chicken population. If the virus evolves to jump from human to human, it may wreak untold suffering, or weaken and disappear. The anti-viral drug, Tamiflu, may be our salvation, or it may prove useless. Scientists are hoping for a vaccine, which we may be able to develop, or not. Prognosis? In the words of World Health Organization official David Nabarro, "the range of deaths could be anything between five and 150 million.
>
> "A military lockdown would make bird flu worse"
> Oct. 30, 2005
> *Chicago Sun-Times*

This paragraph summarized once again the uncertainty and unpredictability surrounding the H5N1 bird-flu virus and the possible pandemic it might cause. Avian influenza was called "the most malleable of news stories" and "a loose collection of 'what ifs?' conjectures, apocalyptic scenarios, history lessons and science-based guesswork."

November was a month rich with bird-flu and pandemic related stories. On Nov. 2 President Bush announced his $7.1 billion "emergency bird flu strategy," which generated many news stories and editorials in the days to follow ("Bush unveils bird flu strategy; Plan focuses on vaccine makers; *Atlanta Journal-Constitution*). The plan named the Department of Homeland Security (DHS), and not the Department of Health and

Human Services (HHS), as the one in charge of the nation's response to pandemic flu. Jeffrey Levi of the Trust for America's Health, a nonprofit group that for the past year had been pressing the administration to complete a pandemic flu plan, called the choice of Homeland Security as lead agency "disturbing," saying it was "essentially divorcing the expertise that will be needed to respond to a complicated health threat from the top chain of leadership."

The Bush plan called for "overhauling the vaccine industry by pumping money into research, accelerating production and freeing manufacturers from legal liability." The plan drew immediate criticism from Democrats, public health authorities, citizen advocacy groups, and media. It was said to focus too much on pharmaceuticals and failed to extend protection to the developing countries where bird flu was spreading. The plan concerned state health departments because it committed only $100 million to support their planning while calling them to spend $510 million from their own budgets to buy millions of doses of a "scarce preventive drug." Only $251 million of the $7.1 billion plan would be used to help foreign nations improve their ability to detect and control flu outbreaks ("The President's pandemic plan; Nov. 2, 2005; *New York Times*; "Bird flu threat gets needed attention; Nov. 3, 2005; *Atlanta Journal-Constitution*).

The dire financial situation in the countries where bird flu was already taking human lives was depicted in articles such as "Poverty and superstition hinder drive to block bird flu at source;" Nov. 3, 2005; *New York Times*, where a Cambodian village was described as lacking phones and where it took a couple of days "during the rainy season for anyone from a remote village even to reach a phone." The only help villagers could expect in

times of disease would come from an unequipped clinic run by an uneducated and unqualified director:

> The government built a small concrete-walled clinic eight years ago in an adjacent village, but electrical lines were never extended from the nearest town and no generator was installed so the clinic's lights have never worked. The clinic's director, Pol Wana, was about to complete junior high school when the Khmer Rouge took over in 1975 and shut all schools. He never returned to school, but leads a staff of 10 in diagnosing ailments and prescribing and distributing medicine.

As Americans were reading about far away places where superstitious and ignorant people were sharing rooms with animals they later slaughtered for food, articles touching on some social aspects related to bird flu in the United States found its way in the media as well. A commentary piece on Nov. 13 asked whether this was "the winter the handshake died" ("Pardon us for (not) being touchy, but it's flu season; *Seattle Times*). The commentary suggested that the handshake, in that time of pandemic fears and bird flu health scares, had become "a common pathway of disease transmission." According to the author, it was going to be hard to replace "the good old handshake" with "flu-avoiding nods" because it had become a ritual that was "more than a mere greeting." Amidst widespread flu-prevention advice to wash hands regularly and avoid "nonessential contact such as shaking hands," between high gas prices, and terrorism alarms, the author, in a sadly humorous way, suggested that Americans should try to stay home more, bracing themselves for "a long winter of touchless telecommuting." Some other editorial pieces on the U.S. bird-flu reality criticized Americans for panicking about a possible pandemic while at the same time were not doing anything to change their behaviors and habits to address real health hazards such as the widely prevalent in the

U.S. obesity ("Worried about bird flu? Try losing weight instead;" Nov. 13, 2005; *Chicago Sun-Times*).

Along with all the voices warning about an inevitable flu pandemic there were some scientists who expressed the opposite view, which was coded under the frame **"pessimism."** Those voices, although a minority, were still offered the floor by the press. An example of such a view was the cited earlier "Hazard in hunt for new flu: Looking for bugs in all the wrong places" article published on Nov. 8, 2005 by the *New York Times*. There, a doctor Peter Palese of the Mount Sinai School of Medicine in New York was quoted as saying that the H5N1 flu viruses are "a false alarm." He said that studies of serum collected in 1992 from people in rural China indicated that millions of people there had antibodies to the H5N1 strain, which meant that they had been infected with an H5N1 bird virus and recovered, obviously without any other complications. Palese said that he did not think that the virus had the capability of jumping into the human population and leading to an efficient human-to-human transmission.

Another example of an opinion that fell under the "pessimism" frame, regarding the severity of the H5N1 bird-flu virus and a possible influenza pandemic, was given by the *Atlanta Journal-Constitution*, quoting an evolutionary epidemiologist Wendy Orent (Oct. 23, 2005). According to her, the fact that avian flu had much in common with the 1918 flu virus that devastated the world did not mean that the H5N1 virus would necessarily turn into the same monster. This was so, because "the peculiar conditions of the world" in 1918 (particularly World War I) led to the Spanish flu pandemic, and such conditions simply did not exist to give a boost to the new virus. Orent added: "You had a huge

number of people in the trenches, in hospitals, in trucks being shuttled all over the western front, in trains, in ships – these ships were just breeding grounds for disease."

Such opinions appeared in the media occasionally, but almost always ended up being over shadowed by the more popular beliefs in the pandemic potential of the H5N1 virus. The emerging new human cases also seemed to support those beliefs. On Nov. 17 China reported its first human cases of bird flu on the mainland. Bird flu had been confirmed in a 9-year-old boy and his 12-year-old sister in Hunan Province, in central China, and a 24-year-old woman in Anhui Province, in east-central China. The boy had recovered while the girl and the woman, a poultry worker, had died ("China confirms its first 3 cases of bird flu infecting people;" *New York Times*). This announcement prompted new calls for stopping the bird flu offshore by helping China and other Asian nations hit by the bird flu. Opinions were expressed by the *Seattle Times* that "financial and technical expertise invested offshore now are the cheapest dollars to be expended in this fight." According to a Nov. 29 editorial, "generous and swift" actions on part of the United States might well prevent a pandemic and keep harm from the States.

In the meantime, giving in to international pressure, the Swiss pharmaceutical company Roche agreed to share control of production and sales of Tamiflu with Gilead Sciences, the California biotechnology company that had invented the drug and had licensed exclusive rights to manufacture and sell it to Roche in 1996 ("Accord on sharing flu vaccine production;" Nov. 17, 2005; *New York Times*).

In addition to vaccines and drug reports, coverage until the end of November and throughout December continued to focus on the spread of the virus, on criticism of China, on criticism of the U.S. government pandemic plan, and on the effects that an outbreak

could have on the United States. The press reported that a severe bird-flu outbreak would cost the U.S. economy $625 billion. According to the Congressional Budget Office (CBO), such an economic impact would be equivalent to a recession. The CBO report estimated that 30 percent of the U.S. population would become ill in a three-month outbreak, and about one-third of the U.S. work force would miss three weeks of work ("Bird flu could cost U.S. $625 billion; Dec. 9, 2005; *Seattle Times*). In brief, it was going to be "not business as usual." Businesses were urged to develop plans that would allow employees to work from home. Articles about changes in sick leave and other human-resource policies began appearing, as well ("Not business as usual;" Dec. 1, 2005; *Seattle Times*).

As China continued to report new human bird-flu cases in December, the maker of Tamiflu, Roche, reached an agreement with China's state-owned Shanghai Pharmaceutical Group to make the drug. The Shanghai Pharmaceutical Group had also bought the right to decide how and for how much Tamiflu would be distributed in China ("Roche to let Chinese producer make flu drug;" Dec. 13, 2005; *New York Times*). More reports about Tamiflu-resistant bird flu in Vietnam, however, increased doubts about the effectiveness of the drug in containing a possible flu pandemic ("Tamiflu-resistant bird flu alarms experts; Dec. 22, 2005; *Atlanta Journal-Constitution*). One of the "heroes" depicted in bird-flu coverage in December, described Tamiflu using a sports metaphor saying that the drug was "a nice single up the middle, but not a home run" ("The doctor who stands between New York and the flu;" Dec. 23, 2005; *New York Times*).

At the end of 2005, bird flu was identified by U.S. and international public health authorities, politicians, and the press as an "unpredictable global threat," for which the

world and the United States were unprepared. To use the militaristic language that many of the articles used, during that year, American press readers were well informed about the advent of the H5N1 virus through Asia and its escape to Europe. Global fight against this mysterious and unpredictable virus was continuously called for by the media and the scientific, political, and public health sources they used in their stories. Uncertainty about how the virus spread, whether it would mutate into a strain causing pandemic, how hard it would hit if it hit, etc., rang through media coverage on a constant basis. Articles about predicted great social and economic effects in case a pandemic hit were reinforcing the health scare surrounding the H5N1 bird-flu virus and a possible pandemic, keeping the issue high on the public's agenda. A great deal of coverage, after President Bush announced the U.S. pandemic preparedness plan, was devoted to criticism of that plan's priorities. Despite acknowledging that the plan was a step in the right direction, public health practitioners and professionals, scientists, politicians, interest groups, lay people, and media themselves had a lot to say about where the plan went wrong. Criticism continued to be expressed also towards China as a representative of that "other world" from where the virus had come. Earlier epidemics and crises – such as the AIDS epidemic, the 1918 Spanish flu pandemic, the Swine Flu Fiasco of 1976, and after Aug. 29, 2005, Hurricane Katrina - illustrated for the readers how serious the bird-flu threat could be and how poor, not well thought out, and ill executed governmental action could lead to many unnecessary (and preventable) losses of human lives.

2006 Coverage

The world met 2006 with more new human deaths from the H5N1 avian influenza virus. In early January Turkey reported that a 14-year-old boy and his 15-year-old sister

had succumbed to the bird flu ("Turkey reports two deaths from bird flu;" Jan. 5; *Seattle Times*). The bird flu reports from Turkey began to multiply faster than expected coming from various part of the country. Stories about the slow Turkish response followed in the press, and the fact that "people died before officials realized that there was bird flu in the regions" was brought to the readers' attention repeatedly ("Turks were slow to respond to reports of bird flu, residents say;" Jan. 10, 2006; *New York Times*). The articles about Turkey and the children's deaths there told stories of innocent victims and "martyrs" whose deaths "finally called [Turkish officials'] attention to the outbreaks in their villages." The residents of those villages were depicted as victims whose livelihoods were shattered due to the chicken cullings. They were also victims of ignorance and lack of information: the father of the two dead children had not even heard of bird flu in late December when his children had fallen ill.

The cases in Turkey also contributed to the "scientific puzzle" of the H5N1 avian influenza virus. A Jan. 11 article reported that two young brothers, age four and five, had tested positive for the virus but had not been showing any symptoms. Doctors could not tell whether they were seeing bird flu in its early stages or if that meant that infection with the H5N1 virus did not always lead to illness. Also, of the five new recent cases in the Turkish capital, none had died, which increased the possibility that human bird flu was not as deadly as had been thought, and that many mild cases in Asian countries might had gone unreported ("A scientific puzzle: Some Turks have bird flu virus but aren't sick; *New York Times*).

In the meantime, American readers were being told why the avian flu had not yet hit the United States. Howard Markel, a professor of pediatrics and communicable diseases

at the University of Michigan, described for the *New York Times* how the United States might have "dodged the avian flu threat" for the time being. Since the wild migratory birds had completed their seasonal migration, the United States was out of the way and thus somewhat protected. It was quite reassuring to read that, since the United States, like Canada and Europe, tried to keep track of migratory waterfowl, if wild or domesticated birds were discovered to be infected with H5N1, they and those nearby would be destroyed, and uninfected birds vaccinated. The article mentioned that in Asian and Africa, surveillance and public health services were rather weak to almost nonexistent, and people who raised chickens for food were hesitant to report sick birds unless they knew they would be compensated. All this contributed to the spread of the virus among chickens and facilitated its jump to humans ("If the avian flu hasn't hit, here's why. Maybe;" Jan. 1, 2006).

As January progressed, Turkey reported 20 human cases of bird flu, including four deaths. The criticism of Turkish officials who were said to have responded too late led to more calls for "international efforts to build up many nation's veterinary capacity so that they can spot outbreaks early, when they can still be contained fairly easily with steps like culling or vaccinating chickens" ("Conferees call for more money to fight bird flu;" Jan. 18, 2006; *New York Times*). The world could not longer ignore the bird flu threat and on Jan. 19 the *Atlanta Journal-Constitution* reported that "more than 90 countries and 20 international organizations pledged $1.9 billion for the global fight against bird flu." The money, including $334 million pledged by the United States would finance vaccine research and health education campaigns in villages around the world ("$1.9 billion committed to global bird flu fight").

As nations and governments all over the world were showing their solidarity by making a firm financial fist to fight H5N1, the bird flu virus took another young human life, in yet another country – Iraq. Just as in Turkey, the bird flu in Iraq became evident through a human death. Since bird flu did not infect humans too often, and usually did so in the late course of an animal outbreak, it meant that the virus had gone unnoticed and undetected in that "war-torn state." Maria Cheng, a spokeswoman for the World Health Organization in Geneva, stated the obvious that seeing human cases first "pointed to serious gaps in surveillance" ("In first Iraqi case, bird flu kills girl in North; Jan. 31, 2006; *New York Times*).

While bird flu was gaining momentum on the doorsteps of Europe, the *Chicago Sun-Times* reported on Feb. 5, in its usual factual, concise manner, that the United States had stocked up on Tamiflu to treat 46 million Americans, up from the initial order for 15 million. The reassurance of this message, however, quickly diminished when an article on the next day reported that American cities and states lagged in their readiness to fight the H5N1 ("States and cities lag in readiness to fight bird flu;" Feb. 6, 2006; *New York Times*). The article described how the nation's 5,000 state and local health departments were rushing to plan for an epidemic but found that very hard due to the lack of federal financial support and federal governmental guidance. According to the article, only a few places, particularly Seattle and New York City, had made significant progress, and the situation in the rest of the country was described as "depressing" by Jeffrey Levi, a flu expert for the Trust for America's Health nonpartisan health policy group. The President's plan of Nov. 2, 2005 did allocate $350 million for local health departments, but divided among 5,000 health departments, this was only $70,000 each, which sounded

like a small amount of money to help whole states and cities adequately prepare for a flu pandemic.

Then, as expected and feared, the bird flu reached Africa, "a continent that is ill prepared to contain its spread." Chickens were dying in Nigeria, a country "that would need a considerable aid in combating the outbreak" ("Nigeria has Africa's first case of bird flu;" Feb. 9, 2006; *New York Times*). After that announcement articles began soon discussing why the appearance of bird flu in Africa was "deeply worrisome." A Feb. 12 article in the *New York Times* cited two reasons – the continent's ill preparedness to deal with epidemics and the fact that the outbreak occurred only a couple of months before birds would begin migrating north from Africa to Europe. This article also reported that Northern Nigeria was "one of the world's last outposts of endemic polio" and now bird flu was added to the health problems that existed there. Additionally, this story, titled "A worrisome new front" told the readers how the outbreak was being handled on a farm where 20,000 birds had died in that "other world" called Africa:

> Although the Nigerian Health Ministry had announced that the farms were quarantined and being disinfected, he reported that basic safety measures were being ignored. Carcasses were being burned in the open, letting infectious feathers and dander spread downwind. The farm workers doing the culling wore their regular overalls and had no protective gear. Villagers were still entering the property to draw well water.

The *New York Times* also made it clear that Africa was a continent where "the backyard chicken is everywhere and veterinary health systems are nowhere." The outbreak in Nigeria had begun on Jan. 10 but it had taken 20 days for the country to send samples to a lab that could test them. Also, Nigeria was paying farmers too little for their killed chickens which guaranteed that those people would most likely hide their flocks from the authorities ("Playing chicken with bird flu; Feb. 21, 2006). The case of bird flu

in Nigeria offered the media yet another opportunity to remind the world why "rich countries should be sending platoons of veterinary experts to help Nigeria and its neighbors:"

> But there is no effective veterinary surveillance in most poor countries. Since each bird-to-human transmission gives the virus another opportunity to mutate into a form that could cause a pandemic, the health of the whole world could depend on constructing it.

In the meantime, the H5N1 bird-flu virus had reached "the developed world" - Europe. Greece, Italy, Germany, Austria, Slovenia, Croatia, Denmark, Bulgaria were among the first in early February to report the presence of bird flu in wild birds and chickens. By Feb. 20 international health experts were showing their surprise and worry about the rapid spread of bird flu, by then already in India, Egypt, and France. This new, rapid spread "perplexed" international public health experts who until then "had watched the virus stick to its native ground in Asia for nearly five years," and had them asking "After several years in one place, why is it now moving so rapidly?" All that Samuel Lutzi, director of the Animal Production and Health Division at the United Nations Food and Agriculture Organization in Rome, had to say was: "there is a lot about this that we just don't know"("Health experts surprised at rapid spread of bird flu;" Feb. 20, 2006; *New York Times*).

With the virus rampant in Asia, Europe and Africa, things in the United States appeared to go at a slower pace. Despite constant reminders that it was just a matter of time before the bird flu showed in the United States and that it was certain that it would cause the next influenza pandemic, the U.S. government received strong criticism from Democrats for not acting quicker in ordering antiviral drugs. A spokesman for the Health and Human Services was quoted saying that "ordering delays would not affect the date

that the drugs were delivered because the administration had already given Roche a letter of intent," which "essentially reserved our place in line." Roche, however, disagreed and its spokesman said in the same article that since they had orders coming in from all around the world, Roche could not "produce or hold or allocate product off letters of intent." The company needed a contract and such was not signed with the U.S. government in March 2006, even though Congress had appropriated the money for pandemic flu preparedness in December 2005. This article brought to light the rather frightening fact that the U.S. government and the maker of Tamiflu were not on the same page, which could jeopardize the U.S. supply of the drug and put Americans at risk ("U.S. stockpiles antiviral drugs, but Democrats call pace too slow;" March 2, 2006; *New York Times*).

More bad news for Americans was the insufficient number of ventilators, which cost at least $30,000 each. According to Dr. Irwin Redlener, director of the National Center for Disaster Preparedness at Columbia University, "this is a life-or-death issue, and it reflects everything else that's wrong about our pandemic planning." He also criticized the U.S. administration by adding that "the government puts out a 400-page plan, but we don't have any ventilators and there isn't much chance we're going to get them." This was so because Congress had authorized for 2006 only $3.8 billion of the $7.1 billion that Bush requested for flu preparedness and nearly 90 percent of it was set aside for vaccines and the antiviral drug Tamiflu. Buying enough ventilators for a flu outbreak like that of 1918 would cost $18 billion. Even if there were enough respirators, there were not enough trained people to work them, which further widened the gap in the U.S. pandemic

preparedness ("Experts say medical ventilators are in short supply in event of bird flu pandemic;" March 12, 2006; *New York Times*).

Further gaps in the U. S.' pandemic preparedness were added by the inability of major U.S. airports to handle flu quarantines, as reported by the *Seattle Times* on March 19. Most major airports, among which Seattle's Sea-Tac, Logan in Boston, Dulles outside Washington, Miami and New York's JFK, had not yet found facilities they could seal off to use for the quarantine of a large number of potentially exposed passengers for several days. Having in mind that SARS escaped China on the wings of a plane carrying an exposed passenger, preparing major U.S. international airports for flu quarantine should have been among government's priorities.

Amidst all these talks about U.S. flu pandemic preparedness, or the lack thereof, an article in the *Chicago Sun-Times* published on March 26 stated that "each year brings a new disease" and "if bird flu fails to cut us low, some other disease will bring a deadly plague as more infections jump from animals to humans." Using as a source Mark Woolhouse, chair of Infectious Disease Epidemiology at the University of Edinburgh, the article went on to explain that in the last 25 years 38 new pathogens had moved from other animal species to the human population. Among those most known were the West Nile virus, the Ebola virus, the HIV/AIDS virus, the bird flu that caused the 1918 flu pandemic, and now the new H5N1 avian influenza virus. The impact of "species-jumping pathogens" varied, and very often it was human activity that encouraged the strengthened the viruses once they reached their human hosts. Or, as the article put it, "the lucky pathogen that finds itself in a human body gets a boost…because of the sheer scale of civilization:"

> When people crowd into high-density cities, sprawling slums and hospitals; consume insufficient or bad food and polluted water; travel widely and often; ship vast quantities of products worldwide; make sex an industry; damage their immune systems by disease, chemotherapy, transplant-facilitating drugs or environmental toxins, or are plunged into the chaos of war, the pathogen has a much bigger field of play.

When the journalist asked another scientist for the probability of a bird flu pandemic happening, the scientist replied that sooner or later a pandemic, caused by the H5N1 or another strain, was inevitable, "like an earthquake in California."

Such talk about the inevitability of a pandemic at one hand, and the uncertainty about the timing of its occurrence on the other, put health officials in a difficult position. As the *New York Times* article "With every epidemic, health officials face tough choices" put it, the great dilemma that stood in front of these people was "to warn or not to warn" (March 28, 2006). Because the flu virus constantly mutates, leading to human pandemics that "predictably occur unpredictably," public health authorities might end up being blamed for crying wolf or for not informing the public and preparing adequately about the potential danger.

The article detailed what had happened in earlier situations like that. With the infamous case of the 1976 Swine Flu, officials were too quick to react and the government spent $135 million to make enough vaccine to immunize 200 million Americans, about 95 percent of the U. S. population at that time. This effort, however, was suspended shortly after it began because reports about paralysis among vaccine recipients started coming in. The feared killer flu never came, but by the time the inoculation effort ended, 535 cases of Guillain-Barre had been diagnosed, including 23 deaths, outnumbering the mostly mild 230 cases of swine flu at Fort Dix where the virus first hit. The virus did not spread and ever since then that immunization plan had been

called “a fiasco.” As the article stated, this episode had become “a textbook case in training a new generation of health officials about the dangers of sounding warnings too early without having a well-thought-out plan.”

The opposite problem - failing to warn about preparations for an outbreak - occurred in 2001, when, shortly after Sept. 11, Tommy G. Thompson, then secretary of Health and Human Services, assured Americans that the government was fully prepared to respond to any bioterrorism attack. Within days, the deliberate release of anthrax spores through the postal system proved him wrong. The outbreak was small - 22 cases, including 5 deaths - but it showed “how poorly the government communicated in a timely way to doctors and the public.”

The article suggested that these two cases led many people to lose trust in government health warnings, or the lack thereof. The questions asked were: Should health officials risk issuing stern warnings that may frighten people? Or should officials play it safe, going about their business and informing the public only when a pandemic became real? If they did issue early warnings, and nothing happened, they stood to lose credibility among lay people and people who claimed that scientists promoted the worst possibilities in order to get more grants and waste taxpayer dollars. On the other hand, if officials did not issue early or timely warnings, and a pandemic occurred, critics would say that the public was not informed and protected in time. It was not an easy decision or a win-win situation for public health authorities. They, too, in a way appeared to be victims of the H5N1 virus.

During that time there were several new instances of scientists expressing their pessimism about the inevitability of a pandemic. An example of such a view was the *New*

York Times March 28 article “On the front: A pandemic is worrisome but unlikely.” There, Dr. Jeremy Farrar, who had been observing the H5N1 in Asia for many years, stated that the world’s preoccupation with the virus was not “entirely rational.” He classified the 1918 flu pandemic as “a unique biological event” and shared that he did not believe “the mantra that a horrific influenza pandemic is inevitable or long overdue.” Farrar pointed out that in Asia, billions of chickens had been infected and millions of people had lived with them, yet only less than 200 people had been infected with the virus since it first appeared in 1996. That meant that “the constraints on the virus are considerable” and that “it must be hard for this virus to jump.” Farrar acknowledged that the H5N1 was a “nasty virus” and that its spread over three continents was “alarming.” He believed there was nothing wrong with preparedness, but in a world where people were still dying of “real and present diseases” like malaria and tuberculosis, the “doomsday” predictions about flu pandemic were “unhelpful, more fantasy than fact.” The doctor confirmed his optimistic message that a pandemic will not come by saying that even if the H5N1 virus changed so that it readily infected people, it would most likely become less deadly.

Farrar’s opinion, however, somehow sounded insignificant and so forgettable amongst all the others predicting a serious flu pandemic and stressing how unprepared everybody was for one. On March 30, the *New York Times* announced that:

> A bird flu vaccine being stockpiled by the government in preparation for a possible pandemic protects only about half the people who receive it. In addition, it must be given in such high doses that if a pandemic were to start soon, manufacturers could not begin to make enough vaccine for all who would need it. A dose 12 times the amount used in a standard flu shot protected 54 percent of the people in a study being described today in the *New England Journal of Medicine*. That level of effectiveness is "poor to moderate at best," said Dr. Gregory A. Poland of the Mayo Clinic, who wrote an editorial accompanying the report.

It appeared that the newly developed vaccine was not too effective, and even if it was the government had stored a "modest" amount, about seven million to eight million doses, which, if needed to be used in an event of an outbreak, would not be of much help to the public because the first to be vaccinated would be health care workers and people who would be involved in the hurry to make vaccine specific to the strain that was causing the outbreak. Since the United States lacked the capacity to make both the bird flu vaccine and the vaccine for the seasonal flu, the seasonal flu vaccine had to take priority "because those types of flu occur every year, and bird flu is a theoretical threat." To its credit, the government was spending several hundred million dollars to increase the nation's ability to make flu vaccine.

In the light of this rather discouraging news about the bird flu vaccine, the *Chicago Sun-Times* announced the FDA's approval of Relenza for the prevention of flu in adults and in children five years or older. Until then, the less talked about antiviral was approved only as a treatment once people had the virus ("FDA approves drug to prevent flu;" April 2, 2006).

During April, the last month of flu season 2005-2006, which also was the last month included in this analysis of bird-flu press coverage, in addition to the above mentioned story, media reported also on a baby's death in Indonesia, more chicken cases in Egypt, and one dead swan in Britain. Coverage of Egypt discussed how bird flu prayed "on ignorance and poverty." Effects of the virus on Asian tourism were also reported, as were European scientists' criticisms of the failure of international health authorities to monitor cats and dogs, which could also help spread the virus. The main message in the media

continued to be that a pandemic was inevitable and that the world and the United States were unprepared.

At the end of April 2006, there were 205 confirmed human cases of H5N1 avian influenza out of which there were 113 deaths (55 percent death rate). The numbers were as follows: Azerbaijan – eight cases (five deaths); Cambodia – six cases (six deaths); China – 18 cases (12 deaths); Egypt – 12 cases (four deaths); Indonesia – 32 cases (24 deaths); Iraq – two cases (two deaths); Thailand – 22 cases (14 deaths); Turkey – 12 cases (four deaths); and Vietnam – 93 cases (42 deaths) (WHO, 2006). At the end of the period of this study, it was obvious that as the number of confirmed cases and human deaths continued to rise, so did the number of articles (See Appendix E).

The state of the press's H5N1 bird-flu coverage could be summarized like the way an article reviewing Mike Davis's book *The Monster At Our Door: The Global Threat Of Avian Flu* did, by saying that "...as the lethal H5N1 virus has begun turning up in fowl from Romania to London, the Western news media have been squawking like a bicycle load of caged chickens at a Hanoi market" ("Hell on wings;" Nov. 27, 2005; *New York Times*). This metaphor appeared to be highly appropriate for the situation at hand. The main media messages about avian flu were that the killer virus was on a rampage and that the world should brace itself for a flu pandemic. Scientists were sure a pandemic was inevitable, but none could tell exactly when it would happen or how severe it might be. No nation was insured against the virus, and no nation was entirely prepared for a pandemic. There existed no completely effective drugs or vaccines against the virus, which was mutating constantly. Even if an effective vaccine were found, it would take months to produce enough to vaccinate everyone. Global action was required to combat a

global threat. Avian influenza was “a fundamental test of human solidarity.” However, despite the fact that wealthy governments and international organizations had finally begun allocating millions of dollars to controlling avian flu in Southeast Asia, “the world’s resources for fighting the disease” were “organized much as the lifeboats on the Titanic – enough to save some, not all, of the richest passengers, with nothing left for the crowds at steerage.”

Chapter 4: Discussion

This study looked at press coverage of the H5N1 bird-flu virus and a possible flu pandemic in the *Atlanta Journal-Constitution*, the *Chicago Sun-Times*, the *New York Times* and the *Seattle Times*, in the period 1996-2006. The narrative discourse of bird flu and a potential flu pandemic in these four newspapers was characterized by the wide use of war metaphors, which clearly dominated coverage. All newspapers during the period of study made use of such militaristic language to call attention to the virulence of the virus and to emphasize the public health efforts that were necessary to deal with it. Using as sources various U.S. and international public health officials, politicians, scientists, physicians, activists, and lay people the media delivered the following messages:

- The H5N1 bird-flu virus was a new strain against which people had no natural immunity.
- The H5N1 bird-flu virus was a "mysterious" strain threatening to mutate and evolve into a virus that was easily transmittable from person to person.
- The H5N1 bird-flu virus was a global threat. It respected neither borders nor species. No country was insured against the bird flu. Everybody should fear the virus.
- Global efforts to combat the spread of the virus were needed. Rich nations should help poor nations with money, experts and anything else possible.
- The virus had already had great economic impact on millions of poor people in China, Indonesia, Cambodia, Nigeria, and other nations. Tourism and international travel had also suffered the effects of the virus.
- There had been cases of human-to-human transmission.
- Vaccine production and supply were major national and international priorities.

- There was no effective vaccine against the H5N1 bird-flu virus. Several cases had also shown the virus's resistance to Tamiflu.
- The greatest fear of experts was that the virus could mutate into another form that spread easily from person to person, possibly sparking a global pandemic. A flu pandemic seemed very likely in the near future.
- There was a great uncertainty about when such a pandemic might occur and how severe it might be.
- A flu pandemic would be a horrifying event with many deaths and great social, psychological and economic consequences.
- The world was not well prepared to handle a flu pandemic.
- Not enough help had been given to developing countries where the virus had hit hardest.
- Local planning was vital. States should not rely entirely on federal government for protection.
- China was the H5N1 bird-flu virus's "epicenter" and the traditional hotbed of influenza viruses.
- The "other world" - China, other underdeveloped Asian countries, Africa – were inhabited by poor, ignorant, superstitious people.
- Poor economic conditions, inappropriate horticultural practices and cooking customs in Asia, Africa, and developing countries elsewhere, had facilitated the virus's jump from birds to humans and increased the possibility of a pandemic.

In addition to the wide use of military metaphors, it was through the following frames that the press conveyed these messages: "health scare/fear;" "effects/impact of the virus;" "earlier epidemics;" "vaccines/drugs;" "preparedness;" "criticism;" "microbes/viruses evolving;" "personifying the virus;" "uncertainty/mystery;" "changes;" "globalization;" "blame;" "communication;" "response in an event of a pandemic;" "terrorism/bioterrorism." The myth of "the other world" was strongly present in

coverage. The myths of the "hero," the "victim," and the "plague" also appeared in bird flu coverage. Race, disaster metaphors (fire, hurricane metaphors), and several Christian/biblical metaphors, also surfaced in coverage conveying the seriousness of the virus and the difficulties humans faced in their efforts to deal with it.

Altheide (2002) wrote that "fear begins with things we fear, but over time, with enough repetition and expanded use, it becomes a way of looking at life." Similar was Ungar's (1998) view about a "firm link between the media and the creation of public fears." As the H5N1 avian influenza virus was spreading throughout the world, and as more human cases of infection and death were being reported, the U.S. press, not surprisingly, increased its coverage of the virus (See Appendices D & E). "A flu pandemic is inevitable;" "It is only a matter of time;" "Millions might die;" "We are not prepared;" these were just a few of the media messages that made it clear that people should fear that virus. To the "plague of fears" with which people began the 21st century (Tomes, 2002), one more fear was added – the mysterious, unpredictable, lethal, pandemic potent, and panic prone H5N1 bird-flu virus.

This major "health scare/fear" frame was further reinforced by adjectives such as "ominous signs" and articles such as this March 26, 2006 *Chicago Sun-Times* piece entitled "Each year brings a new disease': If bird flu fails to cut us low, scientists say, some other disease will bring a deadly plague as more infections jump from animals to humans." The bird-flu virus and a potential avian flu pandemic were referred to as "a health scare a person can sink his teeth into," adding to the list of old health scares such as anthrax, smallpox, flesh-eating bacteria, Ebola, Lyme disease, and so many others that

at one point or another had preoccupied the media's agenda and scared the public senseless.

The health scare was also evident through reports of physicians who had patients come to their offices and request Tamiflu prescriptions. One physician reported that three out of four patients he had seen during the week had announced they were scared of the avian flu. Those were obese patients, patients with diabetes and high blood pressure, AIDS patients, but what worried them at that moment was bird flu, and they were "eager to stock up on anti-flu drugs."

The major "health scare/fear" frame so characteristic of bird-flu press coverage was further enriched and supported by the following frames: "effects/impact of the virus;" "earlier epidemics/crises;" "vaccines/drugs;" "preparedness;" "terrorism/bioterrorism;" "criticism;" "uncertainty/mystery;" "communication;" and "response in event of a pandemic." Disaster metaphors also helped convey the severity of the bird-flu problem. These will be described and discussed in more detail.

"Effects/impact of the virus"

In addition to the obvious losses of human life and millions of poultry and wild fowl killed, economic effects of the virus were reported to be greatest in the Asian countries where the virus hit hardest. Turkey and Europe also suffered economic losses due to poultry bans and decrease in chicken consumption. People's whole livelihoods were shattered with the mass culls of chickens which were undertaken to prevent the spread of the virus. Often media described gruesome pictures of government workers in Asian countries stuffing live chickens into bags and pumping the bags full of gas, or slitting the birds' throats if they ran out of gas:

> And so, at 8 a.m. today, after receiving brief instructions from a blue-uniformed poultry inspector, the four workers at the outdoor store called Fai Chai Lam Cheung Kai set out to complete the morning's grim task. Working with skilled bare hands, the workers lifted dozens of chickens, ducks, pigeons and quail out of stacked metal cages, arched back each bird's neck, and deftly pulled a sharp knife over the veins and arteries. As blood oozed forth, they tossed the birds - a few with wings still flapping -- into several large plastic garbage bins. The inspector said he would return later with disinfectant and plastic bags.

While the bird-flu virus was "taking its toll" on tourism, the effects of the virus were also said to be psychological – "fear, ignorance, irrational behavior, panic." Fear had prompted "hoarding" of Tamiflu by people and businesses and this made Roche, the maker of Tamiflu at the end of 2005 suspend shipments of the drug to the United States until the regular flu season started. Americans were so heavily stockpiling the drug out of fear of avian flu that it had started to look as if there might not be enough to manage the typical flu season.

People feared eating chickens; in the United States and especially in countries with outbreaks of bird flu, poultry consumption was dropping, though media informed repeatedly that bird flu could not be caught through eating cooked chickens or eggs. The effects of the virus on vaccine production were also substantial. Since the H5N1 virus was so deadly, it was impossible to be grown in eggs, which was the usual method of production. Therefore, scientists and vaccine manufacturers had to come up with new techniques for vaccine development and production, which would slow down further the response to the virus.

There were also writings about potential effects in the event of a flu pandemic. Among those "unfathomable effects" were predictions about millions of human deaths; World Bank's predicted estimated losses up to $800 billion, causing a two percent decline in global economic output, collapse of world commerce and the like. Economic

losses for the United States amounted to more than $620 billion, which would be "equivalent to a recession." Articles also predicted the pandemic might possibly be "the most devastating public health threat in nearly a century," and discussed business disruptions, school closings, and "social distancing," which was the "politically correct" name of quarantine. The Chinese Prime Minister summarized the effects of the bird flu virus in January 2006: "the spread of avian influenza in some countries and areas not only affects their social development, but also poses a grave threat to public health and people's lives and even endangers regional and global security and stability."

Closely connected to the "effects" frame was a frame called "**changes**," which included talks about occurring social, legal, and public health changes as results of the effects of the bird-flu virus. Among those were calls for changes in mindsets and beliefs among poor Asians who had lived with chickens all their lives and never seen a doctor. They did not trust doctors and were quoted saying that they would be better off staying home.

Some other changes referred to people keeping their distance from others, not shaking hands but using the "elbow bump" instead. Articles discussed changes in American diets and restaurant menus, changes in agricultural and horticultural practices, changes in vacation plans, changes in surveillance, and changes in vaccine manufacturing practices. Calls for public health changes urged veterinarians, physicians and other public health professionals and authorities to work more closely together and share information that might help detect or prevent disease outbreaks. Since it was made clear that the bird flu virus was not going to stop at state lines or national borders, calls were heard for national legislation that would protect the rights of affected citizens and help public

health authorities faster detect and prevent outbreaks. President Bush's pandemic plan released in November 2005 assured less liability of vaccine makers, which, supposedly, was going to boost up the timely production of vaccine.

Articles mentioned that U.S. businesses should seriously consider changing their operations, making it easier for business to be done long-distance, if possible, whenever necessary. Companies were being called to examine and adjust their labor and other human-resource policies and come up with "flexible sick-leave policies." This way, when a pandemic struck, sick would not go to work, because they feared losing their compensation. Many minimum-wage workers did not have sick leave and there was "economic pressure for those folks to work through illness."

"Earlier epidemics/crises"

This frame also helped media reinforce the "health scare/fear" frame and convey the fear surrounding the bird-flu virus and a possible pandemic. As pointed out by other scholars (Washer, 2004; Joffe, 1999), a new disease is often described within the context of past epidemics or crises. This "anchoring mechanism" facilitates understanding of the new phenomenon by making the link between the new disease and previous diseases and crises.

Frequent references to earlier epidemics and crises, such as the Spanish Flu of 1918, the 1976 Swine Flu fiasco, the HIV/AIDS pandemic, Sept. 11, 2001, the 2003 SARS outbreak, Hurricane Katrina, etc., increased fears about possible devastation and governmental mishandlings of a pandemic. Fear was further reinforced by comparisons between HIV/AIDS deaths and predicted numbers of bird-flu deaths in case a pandemic occurred. Michael Osterholm, founder of the Center for Infectious Disease Research and

Policy at the University of Minnesota and an adviser to the then Health and Human Services Secretary Thompson, was quoted saying that in his almost 30 years in public health, he had never seen anything else that "could bring us closer to the edge of a major international catastrophe, including HIV." Osterholm added that bird flu "could do to the world in a few months what has taken HIV 30 years."

Media frequently spelled out the "lessons learned" from previous epidemics and crises, urging politicians and public health authorities to take those into serious consideration when thinking about bird flu and its pandemic potential. Drawing the "wrong lesson" from the 1976 Swine Flu Fiasco, i.e., a pandemic did not happen then and preparations were not necessary this time either, would be a great public health blunder. On the other hand, if a pandemic failed to occur, "repeated cries of wolf can make the public blasé."

The 2004 SARS outbreak showed that it did not take long for an infectious disease to spread around the globe. The early denials of cases in China, delayed release of information and continuing confusion served as red flags for international public health authorities. The 1918 Spanish flu pandemic served as a reference point to illustrate the potential devastation of the H5N1 virus. As an article stated, when international public health officials "imagine the possible forms the unfolding epidemic could take, 1918 is what they see." In their depictions of influenza as a "notoriously fast-moving virus," articles were discussing how the 1918 strain killed between 50 million and 100 million people, including a half million Americans, went around the world in five months, and all this was happening when "the fastest modes of travel were steamships and trains."

The handling of the aftermath of Hurricane Katrina cast doubts about the capability of governments to manage disasters. And, if dire predictions were right, "the effects of a bird flu pandemic would dwarf even the devastation caused by a storm like Katrina." This crisis taught Americans that the federal government was not their "first line of defense." Referring to earlier crises, an editorial in the *Atlanta Journal-Constitution* (Oct. 9, 2005) summarized their effects on the American people:

> The nation's psyche has been bruised by a series of recent events that have challenged our self-image of power and dominance. The terrorist attacks of Sept. 11, 2001, showed us we were vulnerable. The pitfalls of our misadventure in Iraq have reminded us of the limits of military might. And Hurricane Katrina exposed a host of weaknesses – the pathologies of a permanent underclass, the continuing fractures of race and massive government incompetence. Katrina taught us that authorities are woefully unprepared for any disaster, natural or man-made.

"Vaccines/drugs"

This recurring frame in bird-flu discourse further reinforced the health scare. The major messages conveyed had to do with the lack of an effective vaccine and difficulties in developing and manufacturing enough quantities on time in the event of a pandemic. Questions regarding how fast a vaccine could be produced once a pandemic began, how much vaccine would be available, and who would receive it first were often asked in the four newspapers. Articles were frequently reporting about a "grave mismatch between the potential need for a flu vaccine and the current capacity of vaccine manufacturing." In a March 30, 2006, article, the *Atlanta Journal-Constitution* reported that the total annual production of all the world's flu vaccine makers was 900 million doses, which in an almost 6.6-billion-person world did not sound too comforting or reassuring. Some articles quoted sources according to which the fact that the United States, "the most

affluent and scientifically advanced country in the world" could not make its own vaccine, was a "bloody disaster."

This frame also discussed the effectiveness of the antiviral drug Tamiflu and made it clear that the drug only worked if it was taken during the first 48 hours. This posed further problems. The nature of the virus was such that many people could not even know they had the virus during the first two days. During that symptomless time, however, they could be spreading the virus unknowingly. The drug prevented the virus from reproducing. Studies had shown it could reduce the duration of illness of common flu strains if administered within 48 hours of getting sick. Treatment course was usually five days. Stories about the drug included admonitions about overusing and misusing it, which might lead to drug resistance. The "vaccines/drugs" frame also contained reports about increasing profits of vaccine and drug makers. In 2005, with countries stockpiling Tamiflu, Roche's profit was expected to increase significantly, reaching $925 million.

"Preparedness"

Closely related to the "vaccines/drugs" frame was the "preparedness" frame. The fear surrounding the H5N1 virus and the next pandemic was further reinforced by constant repetitions of the global lack of preparedness to handle a pandemic. President Bush's pandemic plan was released in November 2005 and, according to media reports, apart from being a modest step in the right direction, revealed huge gaps in the country's preparedness: gaps in international disease surveillance; lack of vaccine and weak manufacturing capabilities; not enough ventilators and respirators in hospitals; not enough antivirals in the nation's stockpile; lack of adequate quarantine facilities at the

nation's ports of entry; not enough federal financial support for states preparedness. The press implied that preparing for a pandemic is an overwhelming, "daunting" process. As for individual protection and preparedness, there was not much people could do except for washing hands regularly, staying home when sick, and hoping a pandemic would not occur.

"Criticism"

This frame closely followed the previous one and included mainly criticism of China's alleged cover ups and criticism of the state of U.S. pandemic preparedness. The president's pandemic preparedness plan was criticized for putting the wrong agencies in charge of a pandemic. Critics feared a "FEMA-like response" where it was not clear who was running what. The plan placed a great burden on the states to purchase their own stockpiles of Tamiflu, a potential bill of $510 million, while receiving from the federal government only 25 percent of the cost. Readers also weighed in. A March 30, 2006, letter to the editor of *Seattle Times* stated that "if Bush sincerely cares about public health, he should gracefully increase, not decrease, local public-health funding." The reader criticized President Bush's spending in Iraq, in light of which the allocated funds for a pandemic seemed insubstantial.

Lay audiences also expressed dissatisfaction with public health authorities for often keeping them in the dark. Some articles mentioned how, in most of the major health crises of the past few years - from the anthrax attacks, to the smallpox vaccination campaign, to flu vaccine shortages - health authorities were criticized afterward for not giving the public enough information. This brought up another frame in bird-flu and pandemic coverage.

“Communication”

Although not a dominant frame in coverage, the communication frame brought to light some issues worth mentioning. Those included the public’s perception that government and public health authorities were not sharing enough information about past or future crises; all that the public obviously wanted was “rapid, honest communication from authorities.” In October 2005, the *Atlanta Journal-Constitution* stated that the country could benefit from a “trusted, authoritative voice on the risks and consequences of avian flu” because many Americans still did not know the difference between seasonal flu viruses and the avian flu virus that could trigger a pandemic, “wrecking the global economy.”

Federal, state and local governments and public health authorities needed to engage in effective communication, which would help them regain the public trust and increase public awareness of the seriousness of the bird-flu problem. As Dr. Jeffrey Koplan, a former CDC director (1998-2002) and currently a VP for academic health affairs at Emory University stated, understanding of the bird-flu threat and the nature and the likelihood of its occurrence was important not only for government leaders, health professionals and the news media, but also for the public. Risk communication techniques and strategies should be employed early to help that information reach audiences and resonate with them. Keeping the public informed about bird-flu and pandemic developments, according to Kaplan, was “vital.” When pandemic influenza materialized, communication would become even more complicated, but at least authorities would not have to start from scratch to explain to a panicked public what had

happened, why it happened, and most importantly, why the public was just being told, when authorities knew about it years earlier.

Communication problems also appeared to exist on an international level. The Chinese government was portrayed as keeping quiet about the development of the disease there. China's cover up of the SARS outbreak brought discussions about how the country could be hiding bird flu. Chinese lack of transparency and inadequate information sharing with world public health authorities were adding to the world's bird-flu anxiety and were frequent media topics.

"Terrorism/bioterrorism"

The bird-flu health scare was further reinforced by this frame, which brought the issue even closer to the attention of American readers, who had always dreaded terrorism and bioterrorism, ever more so after Sept. 11, 2001. This frame made references to how easily terrorists might use bird flu as a biological weapon:

> Why are we assuming that the avian flu will mutate (or not mutate) into a global pandemic naturally? If you were a sophisticated Middle Eastern terrorist wouldn't you already be isolating the virus and trying to produce mutations in a lab? If you were an unsophisticated Middle Eastern terrorist who commanded a few dozen cadres willing to die as suicide bombers, wouldn't you instead a) give them the regular old flu and b) expose them to the avian flu germ and c) send them off to the Western world's busiest airports to just walk around and sneeze? Since the threat of a deadly hybrid comes when people get both the regular and avian flu at the same time, the result might be millions and millions of dead infidels. No bombs would be necessary. Nothing even obviously illegal. Just a bunch of people flying around, breathing. Of course, it's not as if a source of diseased birds is readily available in a nearby country like Turkey. . . . Oh, wait.

These fears increased with the October 2005 news that scientists, "after a decade of painstaking research," had reconstructed the 1918 influenza virus and, how in order to shed light on how the virus evolved, the Health and Human Services ["foolishly"] published the full genome of the virus on the Internet in the GenBank database. This *New*

York Times commentary was written by a couple of scientists who stated that "urgent international agreements" by scientific organizations were needed to limit such publications because those could end up in the wrong hands and become "weapons of mass destruction."

In this context, another *New York Times* column, written by Steven H. Hinrichs, a professor of microbiology and virology and director of the Center for Biosecurity at the University of Nebraska Medical Center, stated that the potential loss of life should terrorists find a way to introduce and spread infectious diseases in crowded cities was reason enough to proceed with a national reportable disease law. The column expressed support of a proposed legislation that would establish a list of infectious diseases like avian influenza and mandate that states report those to the Department of Homeland Security (March 16, 2006).

"Uncertainty/mystery"

Uncertainty is a normal part of scientific research and it must be reported and interpreted as such, with the understanding that "it does not necessarily decrease the authority of science" (Zehr, 1999). Uncertainty was one of the most characteristic frames of bird-flu and pandemic coverage. The major message conveyed was that the only thing certain about a pandemic was its uncertainty. Mysteries surrounded the spread of the H5N1 and its outbreak patterns. Everyone was certain that eventually that virus would mutate to become transmissible between humans and trigger a pandemic, but no one knew for sure when that would happen or how severe the pandemic might be. Reports were saying that it might resemble the 1918 pandemic, but might also be less virulent, like the pandemics of 1957 and 1968. Or the United States might face the 1976 swine flu

situation. It all was one great “malleable” news story, a story of what ifs, “apocalyptic scenarios, history lessons, and science-based guesswork.” As the *Chicago Sun-Times* summarized, we knew that we knew nothing:

> Here's what we know about avian influenza: It may savage the global human population, or it may restrict itself to savaging the chicken population. If the virus evolves to jump from human to human, it may wreak untold suffering, or weaken and disappear. The anti-viral drug, Tamiflu, may be our salvation, or it may prove useless. Scientists are hoping for a vaccine, which we may be able to develop, or not. Prognosis? In the words of World Health Organization official David Nabarro, "the range of deaths could be anything between five and 150 million."

This uncertainty and mystery made it easier for the press to keep reporting the issue. The uncertainty and mystery of the bird-flu virus and its pandemic potential, and the frequent media reports of such, kept reinforcing the bird-flu health scare through keeping alive the fear of the unknown, the untamed and the unpredictable. But it also threatened to make people start ignoring the threat. There were worries that “after enough false prophecies of doom,” people would simply stop paying attention and might end up in “disbelief about genuine risks,” such as obesity, heart disease, or global warming.

“Response in event of a pandemic”

Another way for the press to convey fear and emphasize the seriousness of the bird-flu problem was the discussions of what would happen when a pandemic indeed occurred. WHO was recommending that governments be prepared to close schools, office buildings, factories and other places of social gatherings to slow the rate of new infections and the spread of the disease. Breakdowns of public services such as transportation and electricity were to be expected as well. As for the United States, articles discussed possibilities of “funeral homes flooded with corpses, closing schools, grounding airlines, denying entry to foreign vessels, using troops to put down riots at

vaccination clinics, banning public gatherings, requiring telecommuting by some workers, imposing quarantines." Federal, local and state governments were urged to take into consideration the changing demographics of the population where by the year 2030 census were estimating there would be nearly 72 million people 65 or older.

Another concern was that health care workers, just like anyone else, could panic, "hit the highway or refuse to leave their homes." This "too-scared-to-care syndrome," called "work attrition," had also affected the New Orleans police department during and after Hurricane Katrina and this added one more worry.

Some measures such as the "elbow bump" replacing the handshake sounded funny and farfetched but experts suggested that when people started dying and panic ensued, nothing seems too far-fetched or ridiculous. There were discussions of "mass psychology" – people acting as the group does – and how it could be used to make citizens comply with orders such as wearing masks.

Natural disaster and Christian/biblical metaphors

In addition to these frames, several disaster and Christian/biblical metaphors in bird-flu coverage helped reinforce the sense of fear surrounding the H5N1 virus and a potential pandemic, and helped convey the severity of the bird-flu problem. Occasionally, the virus was said to be able to "ignite" or "spark" a pandemic, one that would be very hard for the world to "quench." Influenza pandemic was compared to a forest fire, which "if allowed to smolder undetected," would make it difficult to "put it out with your foot" and could quickly go beyond the ability to control it. The world was "a vast, dry forest that's susceptible to fire," and it would only take "one spark" to start that fire. "Fire

metaphors" were also used to describe how the 1918 flu virus was "flashing through the city's [Seattle] civilian population like a wildfire."

Avian influenza was also compared to a Category 5 hurricane. Being prepared for a pandemic, scientists were saying, was like claiming to be prepared for a hurricane, and then after the storm was over, going home to see that the house had been flattened. Tracking influenza outbreaks and changes in viruses was tracking a hurricane. Warning about an influenza pandemic was like warning about a hurricane. As the hurricane advances, officials urge citizens to evacuate. Many skeptical residents, however, decide to stay put, believing that this was yet another false or exaggerated alarm. Often those skeptics turn out to be right because a hurricane comes and goes without causing much damage. But a hurricane also occasionally devastates an area, as Katrina did.

"Christian/biblical" metaphors and references also were noticed in coverage. Poultry were said to be dying "in biblical numbers" and in birds the bird flu was "a disease of biblical proportions. The virus and its spread were termed "hell on wings." Showing how out of control the world was when it came down to a possible flu pandemic, a virus outbreak was considered a "force majeure event," an "act of God." Yet, "it would be a sin" if the world did not heed all the "ominous signs" and prepare for a pandemic. Stockpiling of Tamiflu was encouraged, although there were comments that the antiviral drug might be "our salvation" or it might prove useless.

The frames and metaphors presented so far helped the press portray the bird-flu virus and a possible flu pandemic to the American reader. Those, regularly following the story might have concluded that a crisis was in the making. Not all crises, however, turn into panics, according to Ungar (1998), who studied coverage of the Ebola virus. Research

has shown that the occurrence of panic was related to the following set of circumstances: "the number of dramatic precipitating events;" "the potency and vividness of the underlying dread factor;" "timing and location of critical events;" "the amount of consensus in the definition of the threat;" and "the renewal or disappearance of the fear-inducing events."

Put in this context, the bird-flu story and the virus itself seemed quite panic prone. First, there were reports about increasing numbers of infections in birds, and, later, in humans. Second, the bird-flu virus, "the underlying dread factor," seemed lethal, with a more than 50 percent mortality rate in humans and several human-to-human transmissions. Third, the most cases in birds and people were occurring in poor, underdeveloped countries, which lacked economic, public health and other resources to deal with an epidemic. In the beginning the virus appeared to be "sealed off" within Southeast Asia, but with its spread to Europe and Africa in 2005 and 2006, fears about a pandemic increased. Scientific consensus about the virulence of the virus and its pandemic potential followed. Although some scientists were saying that a pandemic might not occur soon, or at least would not be caused by that particular H5N1 virus, most coverage reflected the consensus that a pandemic was inevitable. Lastly, new reports about outbreaks in birds and human infections and/or deaths continued to come in and the virus seemed far from disappearing.

There was little doubt that the press' bird-flu and pandemic discourse was frightening the American readers who were following the development of that story. Bird-flu and pandemic coverage was a great example of the "mutation-contagion package" that is characteristic of media coverage of infectious diseases, and was so

obvious in coverage of Ebola in a study performed by Ungar (1998). This "mutation-contagion package" is "erected around a frightful core" and is composed by several core ideas: "microbes on a rampage;" "microbes are cleverer than us;" "engineering microbial traffic;" "microbes know no boundaries;" and "waiting for the next plague." Press coverage of the H5N1 virus contained all of the above. The virus was indeed depicted as a virus on a rampage, a virus smarter than people, a species jumper mutating and already showing some resistance to Tamiflu. The virus knew no boundaries and was a global threat with its spread to three continents. All requirements for a pandemic were present except for the efficient human-to-human transmission, so everyone was waiting for and fearing the occurrence of that next step.

The bird-flu virus was "an embodiment of the mutation-contagion package," just as Ebola was in Ungar's research (1998). The core ideas that comprise this package were supported by the frames, myths and metaphors used in coverage. "Microbes on a rampage" was depicted through the help of military metaphors; "microbes are cleverer than us" was depicted through the use of the frame "personifying the virus;" "engineering microbial traffic" was depicted through the frame of "microbes/viruses evolving;" "microbes know no boundaries" was depicted through the frame of "globalization;" and "waiting for the next plague" was depicted through the help of the "health scare/fear" frame, previously discussed. This portion of the study will present the military metaphors and frames in their role of making bird-flu coverage "an embodiment of the "mutation-contagion package."

“Microbes on a rampage” ⇒ military metaphors

> For more than a week after the culling, Wang and his family were forbidden to leave their home, with a guard standing watch outside and people bringing them food. The entire village was sealed off to outsiders and villagers were not allowed to leave. Intensifying the feeling of being under siege were trucks that would drive by, blaring messages about hygiene.
>
> A Chinese village “under siege”
> “Waning bird flu still hurts China; Recovery slow for small farms”
> *Atlanta Journal-Constitution*
> March 11, 2004

Seale (2002) said that military metaphors “reify ‘germs’ or ‘bugs’ as malevolent entities threatening media audiences, who are thereby encouraged to mobilize defenses in a state of apprehension and alarm” (p.81). Arrigo (1999) introduced several sets of “military rhetoric” and their medical metaphor counterparts, among which were: “fighting an enemy/foe” ⇒ “fighting a disease/illness;” “suppressing aggression” ⇒ “combating pathology;” “nation under siege” ⇒ “body under siege;” “surveillance work; intelligence gathering; tactical units” ⇒ “clinical trials; team of physicians;” “confining a prisoner” ⇒ “arresting an illness;” “war on crime and drugs” ⇒ “war on disease.” Montgomery (1996), too, opined that “the language of militarism portrays its users as a terrorized and occupied people” and that “in both, tone and character, suggests a manifesto of armed resistance against an enemy of nearly infinite power and evil intentions.” According to Montgomery, the obvious solutions and cures must also follow the military line, thus making disease defeatable only by “massive mobilizations” involving more money, more experts, more research, and more efforts of any kind.

All these examples of militaristic language were clearly present in bird-flu coverage. The “killer” H5N1 virus was “destroying millions of birds” by “attacking” their cells and was “nearly always fatal.” The world was a battlefield; the labs where scientists studied

the virus were battlefields and the research there was “part of a continuing scientific battle of wits” with the flu virus. Scientists working there “must observe many precautions to make sure the virus doesn’t escape.” Quarantine rooms at airports were also described in a militaristic language. Those rooms were “medical holding cells,” “a battleground of a perpetual struggle to catch exotic diseases before they cross the country's borders.”

Quarantine was classified as an “old weapon in the struggle against infectious disease,” in addition to which vaccines and drugs were the “strategies” that needed to be “employed to combat the flu.” Mass chicken slaughters, stockpiles of vaccines and drugs were used to “fight the virus.” Just as during war time, “enhanced surveillance” was required. The virus was said to have “marched steadily” and “rapidly” from China, to Russia, to the Balkans, and to Africa, “creating waves of anxiety and economic disruption” and “disabling” much of the countries’ poultry industries: “Like enemy troops moving into place for an attack, the bird flu virus knows as H5N1 has been steadily advancing.”

The World Health Organization and the U.S. Centers for Disease Control and Prevention in Atlanta clearly were the “generals” of the war. In the United States, CDC’s “influenza teams” were said to be “the nations first…line of defense against an influenza pandemic” and President Bush was going to “form a senior-level task force to put in place an international strategy to deal with the avian flu.” Poor countries, which ironically appeared to be the world’s “front lines,” were being hit hardest by the virus. Messages about poor countries, “the front lines in the battle against avian flu” being

economically unable to fight the virus and a possible pandemic were constantly seen in the media:

> As the global effort to combat bird flu has increased, Laos and other poor countries have become the front lines, expected to manage extensive programs to battle bird flu despite struggling to marshal enough doctors and veterinarians against diseases even in the best of times.

To help those countries "strike back" wherever outbreaks occurred, international teams of flu experts were being "dispatched" or "deployed" to "arrest" the virulent virus. In the "war on bird flu," the United Nations looked to "recruit a killer army," "professional assassins" who would go out there and slaughter chickens to slow down or stop the spread of the virus.

In addition to mass slaughters, a vaccine, which comprised "half of the ammunition against flu" should be developed in time to "battle an influenza pandemic" and help "plan for a viral onslaught." However, the "killer" virus was so "very toxic" that it "killed cells very quickly," and in doing so made it so hard for scientists to get enough genetic material to work with. Also, since there was no guarantee that an effective vaccine would be found, much less produced on time and in necessary quantities, "if a pandemic strikes, it [the vaccine] should not be the only line of defense." Eventually, it became obvious that Tamiflu was probably the "major pharmaceutical weapon" and the only one drug to more or less effectively "attack the virus." Concerned about drug resistance, experts were advising people against over using or misusing that drug, because we did not have "a lot of arrows in our quiver" anyway.

The H5N1 virus was said to be "a moving target" and the world was advised not to "let bird flu drop below the radar." In the "bird-flu battle," international public health

officials and flu experts were calling for a global “mobilization” against the virus, for a “massive effort” to combat the global threat of avian influenza. The virus was called “very nasty” and studies in diseased children and cats suggested that it “attacked” the brain, the intestines, the heart, liver and adrenal glands in an organism. It “killed” healthy young people by “devouring their lungs.” It could take the “immune system weeks to produce influenza antibodies, the proteins that are formed to fight invading microbes.” A cell inside the lungs was “doomed as soon as the virus invades it.” It was “forced to produce more virus, then it basically burst, releasing vast numbers of new virus particles to invade other cells,” causing an “explosion” of infections.

The major message conveyed through all those military metaphors was that a “global killer” was on the loose and its lethal power was sooner or later going to materialize in a pandemic, turning “schools and churches into M.A.S.H. units.” The world was at a “war” that “could not be won,” because “we can’t command viruses to stop swapping RNA or order birds to stop migrating.” “Vigilance was urged in bird-flu fight.” Despite the humankind’s scientific and technological progress, it had become obvious that “we never really conquer germs; we merely wrestle them to a draw.” At war, we needed a “flu strategy,” a “plan of action” for the ongoing “bird-flu battle.”

“Microbes are cleverer than us” ⇒ “personifying the virus” frame

The second core idea was depicted through a frame called here “personifying the virus.” This frame also helped give the virus a specific “physiognomy,” portraying it as a living creature, smart and clever, a conniving killer, a monster. As in media coverage of SARS (Wallis & Nerlich, 2005), the killer image “emerged quickly and persisted strongly” in bird-flu coverage. This dominant killer metaphor gave the H5N1 virus an

"active role." It was the aggressor, the enemy, attacking passive, helpless, defenseless, "blameless victims." A more detailed discussion of the myth of the victim will be offered later on in this study; for now it is sufficient to mention that, unlike AIDS victims, bird-flu victims were all innocent victims, their only fault being born and living in a poor country.

Through the "personifying" frame, the bird-flu virus was depicted also as a "burglar trying to pick a lock with trillions of possible combinations." It was a "promiscuous" adulterer "having affairs" with other viruses, swapping genes, "attaching" itself to cells, "releasing genetic material," and "reproducing" fast. The virus was able to "survive" by "entering healthy cells" "hijacking their hosts to replicate before spreading." This is how mutant viruses were created – when a human flu virus and a bird flu virus met in a cell, they might swap genes and create a new strain, which could end up being the one to begin "sowing the seeds of a pandemic." After each mutation, each virus was just different enough to "evade the immune system's protection" and survive.

This "smart" virus, this conniving, cunning weasel "likes to keep us on our toes." This "troublemaker," "invader," "occupier," "colonizer of tissues and cells" was said to have been "behaving unusually." To further help reinforce the negative image of the virus, an article reported on a Hong Kong TV series where the main character was named Avian Flu and was portrayed as someone with "questionable hygiene" (nose picking) and "borderline morals" (gambling, watching porn).

The H5N1 virus was a representative of a group of virus "hitchhikers" that were "hitching rides in the lungs or luggage of unwitting airline passengers" thus outsmarting everyone and crossing national borders. The virus was a "player" playing a "game of

hopscotch" with everybody. The virus was a predator that "preys on ignorance and poverty" in the poor countries. The bird-flu virus was also portrayed as a "beastly virus" and stubborn villain, "robust enough to survive not just in live birds but also in frozen meat, feathers, bones and even on cages" (though it died with cooking). This robust quality gave the virus the potential to "rage around the globe" if it figured out how to effectively transmit itself from person to person. The virus was "fussy" and "mysterious," unpredictable and undefeatable. Combating it was "a war and a mystery," as the title of one article put it.

Some race metaphors also contributed to the physiognomy of the virus. The virus was "running rampant in both wild and domesticated birds;" it was "jumping" species – from birds it jumped to humans, cats, tigers. Scientists were "racing the virus" to "head off a possible avian flu pandemic" and predict or prevent a "major genetic jump" which the flu made every 30 years. This race was a race with "hurdles:" hurdles stood before scientists in the development and creation of an effective vaccine; economic hurdles hindered the bird-flu fight in poor countries. The moment the "pace of the Hong Kong flu outbreak had slowed," "disease detectives" began trying to "catch up with the virus that caused it." In short, the virus was a fast runner, a "real contender" that left science "no chance to catch up."

"Engineering microbial traffic" ⇒ "microbes/viruses evolving" frame

The next feature describes viruses as jumping species, constantly mutating, becoming resistant to drugs and rendering the human immune system helpless. This was exactly what was happening with the H5N1 bird-flu virus, as well. Almost every article mentioned that scientists knew and feared that influenza viruses, including the H5N1

strain, mutated every few years, and that some of those mutations would make the bird-flu virus easily transmissible between people and lead to a global flu pandemic. Those mutations made it possible for influenza viruses to "keep one step ahead of the fresh vaccines" that were prepared each year.

The very structure of influenza viruses made their genetic shifts so easy. Instead of the stable DNA, the flu viruses were made of the "more vulnerable to errors when reproducing" RNA. So the influenza virus "reinvented itself" and mutated "like a movie monster," making vaccinations obsolete in a year or so. Those high error rates during mutation were responsible for the many small mutations, called "drifts," that changed flu strains slightly from year to year and made it hard on the immune system to recognize them and react.

The H5N1 virus was also described as one that very easily adjusted to its new host, which further increased its ability to efficiently spread from person to person. This way, if the bird-flu virus infected a person who already had a seasonal strain, or, if pigs got infected with both human and bird-flu viruses, those two could swap genes and result in a new virus easily transmittable from human to human.

"Microbes know no boundaries" ⇒ "globalization" frame

The bird-flu virus and its pandemic potential had always been viewed as a global threat, particularly in the light of the 1918 flu pandemic, and the 2003 SARS outbreak. SARS circled the globe in days and proved once again that a severe infectious disease could be up and running before anybody could even register what was going on. After the first case of human-to-human transmission of the H5N1 bird-flu virus was reported in Thailand in September 2004, the United Nations Food and Agriculture Organization and

the World Organization for Animal Health declared that "avian influenza was a crisis of global importance."

Once the virus began spreading throughout Asia, and especially once it reached Europe and Africa, phrases like "global threat," and the virus "spanning the globe in a matter of hours," became frequently seen in coverage. Calls for a global mobilization of money, experts, and other resources became a lot more pronounced in coverage, provoked by the global threat of the H5N1 virus. The United Nations needed an "international culling task force," something like the "Earth Pandemic Defense League," to go around and kill chickens. Calls for enhanced global surveillance and international support for poor countries in their fight with the flu frequently appeared in coverage. The world was interconnected. What happened in China, for example, threatened the rest of the world. Several articles stated that the threat of an influenza pandemic "transcended the capacity of any individual nation or region."

"Waiting for the next plague" ⇒ "health scare/fear" frame and the myth of the "plague"

The last component of the "mutation-contagion package" was "waiting for the next plague." This was conveyed by the use of the "health scare/fear" frame and all its supporting frames, as discussed earlier. Additionally, the few instances of the use of the myth of the plague also contributed finishing touches to the "mutation-contagion package." Past flu pandemics and a possible future pandemic were called on several occasions "flu plagues." Virologists were saying of the H5N1 virus that "it could be a plague of medieval proportions – or it could fade as the swine flu threat of 1976 did." One thing became clear, though: amidst all those fears about virus mutations, lack of

effective vaccines, inadequate preparedness, uncertainties and mysteries surrounding the bird-flu virus, the world was indeed waiting, bracing itself for the next plague. The bird-flu virus and the human deaths it had caused had not been of great consequences for many people, including American readers, but the story of the bird flu was still newsworthy because the virus possessed the potential to spark a "flu plague," a pandemic with enormous global consequences.

The discussion so far illustrated how the bird-flu health scare had all the components that qualified it for a panic. When diseases show the potential to turn into panics, Ungar (1998) writes, media begin looking for ways to alleviate the fear. This is where the so called "containment package" comes in, often employing the strategy of "othering." In its reports about the bird-flu virus and a possible flu pandemic, the American press also made use of this fear-reducing technique.

The myth of "the other world"

The "containment package" was build around the myth of the "other world" (Ungar, 1998), where things appeared completely different and the events occurring there were the results of a distinct set of conditions that did not exist in the industrialized world and in the United States, in particular. The "other world" was one of the most explicitly evident myths in bird-flu and pandemic coverage, the "other world" being mainly Asia and Africa, with coverage often singling out China. This "other world" was depicted as the "land of poverty and chaos without structure or rules" (Lule, 2001). People there often were portrayed as ignorant, uneducated, uninformed, primitive, superstitious, and their lifestyles outdated. They raised animals and kept birds "just like Americans keep dogs." They lived with them, slept with them, played with them. Their backyard chickens

were not only a commercial product but also their main source of food. The biggest problem in the "other world," in addition to "questionable" farming practices, cooking traditions and cohabitation of people and animals, was poverty.

Laos, for example, was reported to be one of the world's poorest countries that had one of the world's highest maternal death rates, and government there could not afford to spend more than $2 dollars annually for health care. Coverage implied that even when those poor countries in "the other world" were being helped, they did not know how to use the help properly. It seemed that they could handle nothing right. In Africa, "where the backyard chicken is everywhere and veterinary health systems are nowhere," the British government donated 15,000 protective suits for poultry and health workers, but they were not being used properly: when culling chickens, most workers used their bare hands "their palms dusty with the sandy mix of chicken feces, dirt and feathers." There were frequent reports about killed chickens left lying around, dogs, cats, and rats dragging them away, threatening to further spread the virus.

It had become clear that the best strategy for stopping bird flu was to cull all poultry and pet birds, even healthy ones, within a wide radius of each detected outbreak. But in countries like Indonesia, China, Nigeria, and Vietnam governments were not paying enough compensation to farmers for killed healthy chickens. So farmers often hid their chickens from authorities, which was said to perpetuate human infections and the threat of a pandemic. Reports from those countries also talked about poorly trained and corrupt chicken-killing teams. Basic safety measures were being ignored and articles described at length how carcasses were being burned in the open, letting infectious feathers and danger spread downwind. Workers were handling birds bare-handed and without masks.

One article finished its description of poultry vaccination in China (Dec. 5, 2005) by reporting that, “after vaccinating the geese in one dusty courtyard, the team discarded its used needle on the ground and walked away.” According to media reports, “in villages from China to Turkey,” farmers were hiding their “prize roosters” or bribed the cullers to spare their flocks. Nobody was concerned much about the children either; cullers wearing biohazard suits recruited barefoot children to catch chickens for them; children were reported kicking dying turkeys around “like footballs” or playing with severed heads. The main media message in those articles was that, poor economic conditions aside, people were also not being educated about the dangers of the disease.

To the average American reader, reports from the “other world” might have at times seemed to be even more ridiculous and literally stomach-sickening. The *New York Times* wrote on several occasions about a common practice in “the other world,” namely cock fights and the cock handlers’ “dangerous habits:” they sucked blood and mucus from the birds’ beaks during fights. This was how one 18-year-old boy in Thailand fell victim to the H5N1 bird-flu virus. He owned a fighting cock and during a fighting game he cleared up the mucous secretion from the throat of the cock by using his mouth “swallowing the spit and mucus.”

Such incredible stories of “what were they thinking” came also from other Asian countries. In Vietnam, a man got sick by slaughtering a duck and eating a pudding he made from the raw duck blood. A man in India died of the H5N1 strain because he had butchered, cooked and eaten his neighbor’s dead chickens. In Africa, where household birds and children were often kept together, the message about the dangers of the virus had not gotten through either: children were being reported playing in a yard with dead

birds lying around. When the birds died, children were instructed to dispose of the bodies in the bushes. In Cambodia, where “poverty and superstition” hindered the drive to block bird flu, a 53-year-old woman got slaughtered like a chicken by an assassin hired by the people in the village where she lived. The villagers believed she was a witch who had cursed their chickens that died several days earlier. She was the only person in the village who had not been born there and she had been viewed with suspicion ever since she moved to the village after marrying a local elderly farmer:

> While the woman was cooking rice over a fire on the dirt floor of her hut, a local man with a machete took action and later collected $30 in donations from grateful neighbors, a month's wages. "The assassin grabbed her hair, pulled her head back and cut her throat," said Ya Pheorng, the village leader. "Her neck was almost completely severed."

Such irrational, incredible and unknown behavior, undoubtedly, left many Americans reading those stories thinking that those barbarians “over there” must be really out of their minds; maybe they deserved what they got because of their foolish and irrational behaviors; maybe they [Americans] had nothing to worry about because such absurd stories happened only in that “other world” where poverty and ignorance reigned.

It became apparent from coverage that the H5N1 virus without a doubt originated in Southeast Asia, particularly China, where in many rural areas, “a refrigerator and color TV are still considered luxuries,” and in order to supplement “their tiny farming incomes, many peasants have turned to raising livestock and other animals.” Articles made explicit and implicit references to that fact, quoting flu experts and international public health officials. Many articles referred to China as “the epicenter,” the “traditional incubator of flu pandemics” and “the principal reservoir for influenza,” clearly putting the “**blame”** for the origin and spread of the virus on the widespread cohabitation of people and

animals and the “near total absence of adequate health care in much of the countryside.” This had made China – “and the world” – “more vulnerable to epidemics” like SARS and bird flu. One letter to the editor of the *Chicago Sun-Times* written by the director of the press division of the Taipei Economic and Cultural Office in Chicago stated that “ignorance of the Chinese communist regime's lying nature and tendency to renege on promises might be the biggest threat of all to all democracies” (Nov. 7, 2005).

China was frequently criticized for its SARS cover up, for its inadequate disease-surveillance system, and its government’s “news blackouts” where journalists were barred from affected regions and threatened with prosecution if they dared report anyway. Heartbreaking stories, like the one about Jin Guilian, also captured the attention of the American reader, provoking feelings of disbelief and pity, at the least (“Wealth grows, but health care withers in China;” *New York Times;* Jan. 1, 2006):

> When Jin Guilian's family took him to a county hospital in this gritty industrial city after a jarring two-day bus ride during which he drifted in and out of consciousness, the doctors took one look at him and said: "How dare you do this to him? This man could die at any moment." The doctors' next question, though, was about money. How much would the patient's family of peasants and migrant workers be able to pay - up front - to care for Mr. Jin's failing heart and a festering arm that had turned black?
> The relatives scraped together enough money for four days in the hospital. But when Mr. Jin, 36, failed to improve, they were forced to move him to an unheated and scantily equipped clinic on the outskirts of Fuyang where stray dogs wandered the grimy, unlighted halls. There, the best doctors could do was to administer oxygen and an antibiotic drip. But the new locale did have one sure merit: with their savings nearly exhausted, of all the places the Jin family had taken their brother in a 500-mile trek from Guangdong Province, it was the cheapest, costing what for them was still an exorbitant fee of about $15 a day.

The story of Jin, the migrant worker with heart problems, illustrated the weaknesses in Chinese the public health system and more:

> Seeking employment, Mr. Jin set out from his village in Anhui, one of eastern China's poorest provinces, when he was in his early 20's. Living with an uncle in Heilongjiang Province in the far northeast, he collapsed one day while hauling wood. He was taken to a

> hospital but left without treatment for lack of financial means. That was the first of several incidents pointing to what doctors eventually diagnosed as congenital heart disease, a condition that has gone untreated. Some doctors have urged his brothers to arrange valve surgery, which they say would cost about $10,000, in a big city like Shanghai.
> Ever desperate for work, Mr. Jin later made his way to Shantou, a city in Guangdong, not far from Hong Kong. There he got a job working as an orderly in a large hospital for about $6 a day. From those meager earnings, about $30 a month had to be paid to the hospital for the privilege of holding the job. It was at the Shantou hospital that Mr. Jin recently fell gravely ill. But as "just a migrant laborer," he said from his bed in the Fuyang clinic, he was denied treatment by his employer of 10 years. "Although I worked there, I knew that I'd have to pay a deposit to get treated," he said. Unable to afford that, he left the hospital for a neighborhood clinic, where he was put on a simple saline drip.

The *New York Times* commented that the failure of the Chinese government to provide decent health care for rural areas had reinforced the idea of China as two separate nations: “one urban and increasingly comfortable, the other rural and increasingly miserable.” Hundreds of millions of rural Chinese were facing the “desperate choices” they had to make due to the clash between health and poverty, knowing that if they treated their illnesses they would lack the money needed for education and, sometimes, food. An expert on health care in rural China was quoted saying that people there were so poor that they could not afford to pay to the clinics even amounts as small as two yuan, which was the equivalent of 20 cents.

According to Lule (2001), coverage using the “other world” myth “affirms U.S. superiority and other nations’ inferiority,” which is exactly what happened with U.S. bird-flu and pandemic coverage. The press provided “scary, fantastic stories of a world beset by anarchy and chaos.” It promoted the image of “Fortress America,” “unequaled in military might and in material comfort” (*Atlanta Journal-Constitution;* Editorial; Oct. 9, 2005), “an island of civilization in a sea of…barbarism.”

In the United States, in stark contrast, there were model farms where chickens were raised in sanitary conditions and under strict supervision. At those farms, testing birds and quick implementation of any new practice that might prevent disease were regular practices. “Things here are not like they are in Asia where chickens are running around outdoors in people’s backyards,” farmers and experts were quoted saying. Everything in the United States was “much more controlled.” According to reports, there was “a world of difference between being a chicken in the United States and being a chicken in the less developed countries” where bird flu had hit hardest.

Those numerous stories of “the other world” confirmed conclusions of other studies of disease and illness, where the disease or illness was always connected to some type of “deviation, or deviance, from a set of norms representing health or normality” (Freidson, 1970). It was obvious that the idea of deviation from what the Westerners considered “normal” and “acceptable” was present in those reports about poor countries hit by the bird flu.

Along with the assurance conveyed through the “**pessimism**” frame, the myth of the “other world” indeed made the H5N1 dangers seem like distant and hypothetical threats to the American reader. Assurance and the sense of being unthreatened and untouchable was further enhanced by the press’s frequent reminders that there were no H5N1 cases, either in poultry or in humans, in the United States. Further, there were discussions about the sanitary conditions under which American chickens were raised, and quotes from CDC flu experts and public health officials about being always on the watch. This “American exceptionalism,” which was said to be “at the core of [American] national mythology,” and the country’s “national religion,” was quite obvious in coverage. As the

Atlanta Journal-Constitution editorial quoted above stated, the American sense of being "separate and apart" and "superior not only to other nations in [their] own time but also unique in human history," appeared to be further reinforced through bird-flu and pandemic press coverage. The values of faith in science and technological progress, the belief that researchers will always find a way to "fend off disaster," and the limitless "American good fortune," might once again help the country avoid the H5N1 bird-flu virus that had already caused devastation elsewhere. After all, migratory birds that carried the virus out of Asia did not even fly toward the United States.

Bird-flu and pandemic coverage did convey the idea of "otherness" and these findings supported Ungar's (1998) notion of "the strategy of othering," which media employ in coverage of infectious diseases in the case when "efforts at reassurance seem warranted." This study demonstrated how the H5N1 bird-flu and pandemic story was being driven and perpetuated by fear and how panic potent that story was, according to the guidelines provided in Ungar (1998). Sensing that a panic was in the making, media shifted gears to reassure the American public. Despite the fact that globalization was starting to make physical boundaries obsolete, the "symbolic boundaries" created by media discourse (Dong, 2004) were as solid as the Chinese wall, separating the secured, healthy, and lucky U.S. ("us") from the poor, sick and unfortunate Asians ("them").

The myth of the "victim"

The people in the "other world" were also victims of the H5N1 virus. This analysis of bird-flu and pandemic press coverage confirmed once again the wide use and the timelessness of the myth of the "victim" in news discourse, and particularly in news discourse about disease. Here, just as Lule (2001) wrote, when stories about victims were

told in coverage, those were “stories of tragedy,” whose main characters were innocent victims, victims of their circumstances, guilty only of being unfortunate and being born in a poor country. Thus, coverage could not really point to bird-flu victims, could not really stigmatize them as coverage of victims of HIV/AIDS, syphilis, and other diseases had done. To the extent that stigmatization occurred in the press, it focused on poor nations and governments as a whole as unable to provide for their citizens and properly protect them from the virus.

The “victims” described in bird-flu coverage were not victims of crime, terrorism, or violence, as Lule’s (2001) and Altheide’s (2002) victims were. The victims here were victims of a flu virus turned deadly. Those were victims in foreign lands who lived with chickens, and pigs, and sheep in their homes, which they later slaughtered for food. The American readers might have found it somehow difficult to relate especially when the H5N1 virus had not found its way to the United States. Nevertheless, coverage emphasized this “personal side” of the bird-flu crisis (Altheide, 2002) by provoking feelings of pity and compassion, which coverage of innocent victims usually does.

The most innocent victims of all were of course the children who died of the H5N1 virus. In one Turkish village dead children were regarded as “martyrs” whose deaths finally made the authorities pay attention to the outbreak in poultry that had been going on in that village. Children who were being recruited by culling teams in Asia to help catch chickens that were going to be slaughtered were also victims. Children were left to play with dead chickens. Nobody was protecting them. They were the most innocent victims of poverty and ignorance. Children whose parents had to choose between the possibility their children would fall ill from bird flu or the certainty they would go hungry

if the parents got rid of the ducks they raised in their homes were also victims, along with their parents. Other victims included villagers who were asked to slaughter chickens with their own hands, potentially exposing them to the virus, a 26-year-old woman who cradled her dying daughter in her arms for 10 hours at a hospital in northwestern Thailand, and later fell sick and died herself, and millions of named and unnamed poor people in those countries whose livelihoods had been destroyed because of the H5N1 bird-flu virus.

Victims, writes Altheide (2002), do not need to be human to be deserving of such status. Bird-flu and pandemic coverage unequivocally supported this statement. Hundreds of millions of chickens, ducks, and geese were slaughtered in efforts to stop the spread of the virus. Migratory birds and domestic cats also died from the virus. Small businesses, corporations, whole towns and nations were falling victims to the H5N1 virus. A Hong Kong businessman, while slitting a bird's neck, told how his business had fallen 90 percent since the 1997 outbreak due to the culls and people's reluctance to eat poultry. Small businesses in the United States were also given the status of potential victims for owners had to prepare for a pandemic and develop contingency plans using very limited resources.

Public health authorities were also a group whose role and difficult responsibilities put them in a tough position. Their decision whether "to warn or not to warn" about the dangers of the H5N1 virus and a possible flu pandemic could arouse public anger if public health warnings were not issued early and a pandemic occurred. In the other scenario, when public health warnings were being issued early and nothing happened, public health authorities lost credibility.

Whole towns were victims, like that German town where in February 2006 a dead duck was found and confirmed to have died of the H5N1 virus. The town had turned into "a hotbed of dread, facing a challenge to its mood and social rhythms, if not its health." The 44,000-person town now was a "restricted area" marked with a sign "bird pest," "hanging under a much larger sign marking the city limits."

Finally, whole nations were depicted as victims of the bird-flu virus. Cambodia, Laos, Pakistan, Indonesia, Bangladesh, Nigeria, Vietnam, Iraq were among the many poor nations in a desperate need of help to fight the monster flu. Bombarded also with reports about wars, deadly tsunami, political and economic instability coming from those countries, the reader could not help but think how sad it was that misfortunes always happened to the already unfortunate ones.

The myth of the "hero"

Usually, as even the children know from the fairy tales, where there are victims and misfortunes, heroes come along to help the helpless and alleviate their suffering. The "heroes" in bird-flu coverage were the scientists, researchers, flu experts who had devoted their lives to studying the viruses, discovering vaccines, and being the generals leading the scientific battle against viruses. CDC and WHO flu experts on the front lines, immediately dispatched anywhere an outbreak occurred, were also the heroes in bird-flu coverage. CDC researchers who worked in the air tight and isolated rooms with dangerous viruses, risking their health and lives for the public health, were also given a heroic status. They were not only scientists; they were called also "medical monitors," "global disease trackers," "flu hunters," "plotting the virus on maps" and "helping save the world from bird flu;" they were not only "investigators" but also "diplomats,

lobbyists, policy advocates." Public health professionals who, in the case of a pandemic, would be taking care of the sick were also described as heroes. This *New York Times* article reported on a "Pandemic Flu" meeting attended by about 100 local health professionals in Mineola:

> Before Dr. Wallace spoke, the corps volunteers in the meeting room seemed like average people: nurses, doctors, paramedics, dentists, a veterinarian and an audiologist were among their number. But after her presentation, which after all was about a contagion that could, at its worst, kill half the people it infects, the volunteers seemed more like Dr. Rieux, the central character in Albert Camus's novel "The Plague," who helps people at the risk of his own life because, well, that is what people should do.
>
> "One more thing to worry about"
> Sept. 4, 2005

The myth of the hero in this analysis was further enriched by reports about "medical detectives," which also appear to be frequent in coverage of infectious disease (Ungar, 1998). An article titled "The doctor who stands between New York and the flu" indeed called Dr. Isaac B. Weisfuse, the head of the division of disease control for the city of New York's Department of Health and Mental Hygiene, a "medical detective," who "has stared down some of the most dangerous germs in a microbe Murderers Row - hepatitis, HIV, and anthrax." Weisfuse who was the city's health official in charge of preparing New York for a "potentially deadly flu outbreak," gave courage and assurance to the readers by saying that the events of the 1918 flu pandemic were indeed catastrophic, but he believed that, should a pandemic occur, "we as a society can do better and save more lives."

Another type of hero depicted in coverage gave the American reader peace of mind and a sense of being protected. The state livestock and poultry inspectors were the "gatekeepers" ensuring the nation's poultry were free of the deadly H5N1 bird-flu virus. An article in the *Atlanta Journal-Constitution* reported on the job of one of the 21 such

inspectors in the Georgia Department of Agriculture who were “at the front line of the state's attempts to keep avian influenza and other bird diseases, such as Exotic Newcastle Disease and pullorum, out of Georgia's $13.5 billion-a-year poultry industry.” The inspector was a woman portrayed as looking for troubling signs in the chickens’ eyes, noses, and at roosters’ combs. It became obvious from the article that experts were at their posts, doing their jobs diligently and humanely: to perform a blood test at random among the chickens, the inspector “gently extended the bird’s wing” and plucked its feathers to expose a vein.

All these fear-reducing techniques helped media convey to the American public that although the virus was on a rampage elsewhere, the threat to the United States was somehow distant and hypothetical.

Chapter 5: Conclusion

This study set out to look for answers to the question: **How has the press constructed the bird-flu virus and the expected avian influenza pandemic in the public consciousness?** or **How has the press framed the bird-flu virus and the next influenza pandemic?** The analysis also examined metaphors and myths used in coverage.

The H5N1 bird-flu virus was a mysterious strain against which there was no effective vaccine and humans had no natural immunity. It was so dangerous that in the hands of terrorists it could be used as a weapon of mass destruction. The virus constantly mutated, threatening to become easily transmissible among humans and spark the next influenza pandemic, which would bring devastating consequences. Nobody was certain about the timing and severity of such a pandemic, but global and national pandemic preparedness should be a top priority. International collaboration was crucial and richer nations should show more generosity towards poor nations. Clear, timely communication from public health authorities was necessary to keep the public informed and mitigate the panic effect.

Through the use of framing, militaristic and other metaphors, the myths of the "other world," the "hero," the "victim," and the "plague," the mass-mediated reality of bird flu and a possible influenza pandemic was depicted as a reality of fear, which helped to perpetuate the story and keep it on the media agenda. This was a story that the media constructed both scientifically and metaphorically, relying on scientific facts as well as on cultural myths and morality. The social representation of bird flu and a possible influenza pandemic in U.S. press coverage resonated with representations of SARS,

Ebola and other infectious diseases: the blame for the threat was put on the world outside the United States – the "other world." Just as Africa and Africans in Ebola coverage (Ungar, 1998; Joffe & Haarhoff, 2002) and China and Chinese in SARS coverage (Washer, 2004; Wallis & Nerlic, 2005; etc.) were portrayed as "disaster ridden," so were Asia and the Asians in bird-flu coverage. China was especially singled out as the constant, inevitable breeding ground for new infectious, including the bird flu. Those countries were implicitly inferior to the Western world, the only place from which money, experts, and other resources could come to the rescue.

It has been a lasting contention among scholars studying media health that in order for journalists to make news out of medical issues they have to rely on something more than just reporting facts and figures and "hard news." In order to do so, journalists dig deeper in the stories to find and "emphasize the mythical, heroic or magical power of medicine, science or technology and of their practitioners, relying on metaphors of magical power, revolution or warfare" (Lantz & Booth, 1998).

This study confirmed that news stories, regardless of their subject matter, are being told again and again using the same familiar, culture-friendly, and reader-tested myths and metaphors. As part of language, shared culture and understanding, those myths and metaphors helped media tell a vivid, descriptive, and informative tale of the bird flu virus and its pandemic potential. Scientifically speaking, the story of the H5N1 virus was a complex story of constantly changing statistics, genetic shifts, and mutating microbes. People, however, are hardly captivated by numbers and scientific lingo. Myths and metaphors in bird-flu and pandemic coverage provoked and kept alive public interest in the topic and aided comprehension of an important and complex public health issue.

The bird-flu and pandemic story made it easy for newspapers to go beyond mere data. This story was easily related to deep mythic themes and values, which provided "material to ponder collectively" (Hilgartner & Bosk, 1988). The story of the bird flu and a possible influenza pandemic was ripe with values of faith in science and scientific progress, belief and pride in good and generous people and nations, hard and persistent work in the name of the public health. This was a compelling human interest story, descriptive of apocalyptic pictures, different worlds and different cultures, mysterious developments, fears of the novel, uncertain and unpredictable.

This study looked at the mass mediated reality of bird flu and the next influenza pandemic, revealing the characteristics of the story that kept it on the media agenda. Bird-flu coverage was coverage of a global health threat, which by the end of flu season 2005-2006 had not yet directly affecting Americans. Yet, the story received substantial coverage by the American press, signifying the importance and the seriousness of the issue. It was also a story ripe with news values that drive media coverage.

An interesting topic, which future studies could explore, would be the readers' views, attitudes and beliefs regarding the bird-flu and pandemic story, or as Joffe and Haarhoff (2002) call it, the "media-mind link." This is the connection between the media messages and representations (revealed in this study) and the individuals' understanding of bird-flu and the potential influenza pandemic.

This study supported previous research noting that media commonly depict diseases as "the other." Future research could follow the lead of the current study by comparing U.S. coverage of "the other" and Chinese coverage of "the other" in the context of the bird-flu and pandemic story. Who is "the other" in Chinese coverage? How are they

depicted? How is the West depicted? In her study of AIDS coverage, Joffe (1996) found that white people, in both Britain and South Africa, saw African as "cradle and hotbed of AIDS," and they identified the media as the source of those impressions. Matched samples of black people in Britain and South Africa held wholly different representations. They linked AIDS with the West "with what were seen as its perverse rituals of experimentalism and tampering with nature."

Finally, the myths and metaphors used in Chinese bird-flu and pandemic coverage could be compared to those found by this study in U.S. press coverage. Weiss (1997) said that metaphors of AIDS and cancer transcended cultural boundaries by offering a "pandemic or universal understanding of illness that is free of contextual conventions of place, status, and body." Future studies could try to find whether this is also true in U.S./Western media coverage and Chinese media overage of the bird-flu and pandemic story.

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Appendices

Appendix A

Newspaper articles

1996 and 1997

4th death in Hong Kong linked to poultry flu. (Dec. 24, 1997). *New York Times,* p. A9.

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Appendix B

Important dates in the life of the influenza virus and a timeline of avian influenza development and spread (WHO, 2006; DeNoon, 2005)

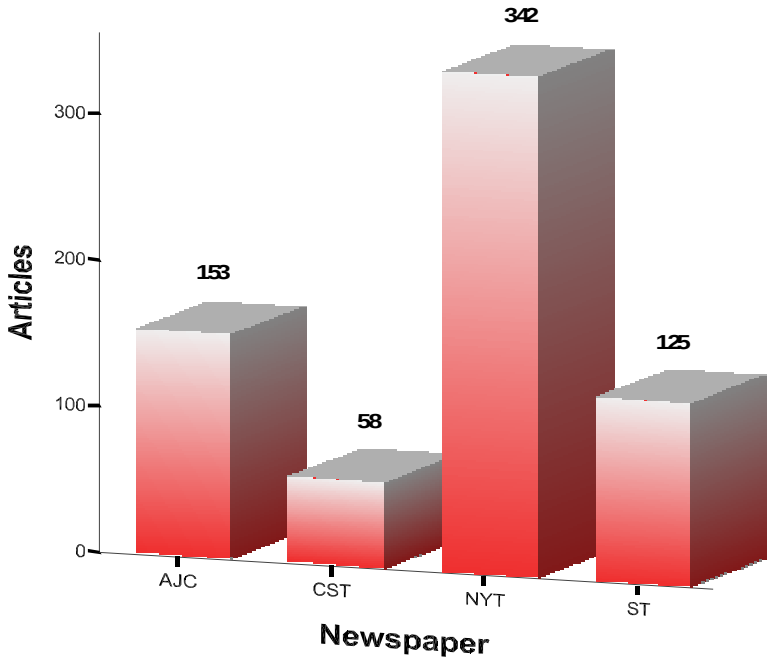
When	What
1580	First recorded influenza pandemic began in Europe and spread to Asia and Africa.
1700s	Influenza pandemics in 1729-30, 1732-3, 1781-82.
1878	A disease causing high mortality in poultry becomes known as the "fowl plague." Fowl plague is now called HPAI avian influenza.
1800s	Influenza pandemics in 1830-31, 1833-34, 1889-90. The last of the three, called the Russian flu, spread through Europe and reached North America in 1890.
1918-1919	The "Spanish flu" circles the globe. Caused by an H1N1 flu virus, it is the worst influenza pandemic to date. More than half a million people died in the United States alone. Worldwide estimates range from 20 to 100 million.
1924	The first outbreak of HPAI avian influenza in the United States. It does not spread among humans.
1956-58	The "Asian flu" causes the second pandemic of the 20th century. It began in China and killed 1 million people worldwide, including about 70,000 Americans.
1968-69	The "Hong Kong flu" causes the next flu pandemic of the 20th century, killing some 34,000 Americans.
Mid-1970s	Researchers realize that enormous pools of influenza virus continuously circulate in wild birds.
1976	Swine flu breaks out among soldiers stationed in Fort Dix, N.J. One dies. It is an H1N1 virus, and health officials worry that they are seeing the return of the 1918 H1N1 Spanish flu pandemic. The outbreak is followed by a quite unsuccessful nationwide inoculation campaign. Deaths are reported due to the vaccine itself.
Avian Influenza WAVE I	
1996	Highly pathogenic H5N1 virus is isolated from a farmed goose in

	China. This is the first appearance of the avian influenza virus.
May 1997	Human infections with H5N1 are reported in Hong Kong. This is the first known instance of human infection with this virus. Most influenza experts agree that the prompt culling of Hong Kong's entire poultry population that year probably averted a pandemic.
Sept 1998	Trial results announced for two new influenza drugs: Relenza and Tamiflu.
Oct 1999	Relenza and Tamiflu are licensed in the United States and Europe.
Jan 2001	WHO outlines its news global laboratory proposal, aimed at improving the range, speed and quality of influenza virus surveillance.
February 2003	First human cases of H5N1 (two, one fatal) are confirmed in a Hong Kong family with a recent travel history to China. A third family member died of severe respiratory disease while in mainland China, but no samples were taken.
19 Dec 2003	Republic of Korea confirms avian influenza in three poultry farms.
8 Jan 2004	Vietnam reports H5N1 in poultry. Three days later, the country reports its first case of avian influenza in humans.
12 Jan 2004	Japan reports H5N1 in poultry.
23 Jan 2004	Thailand reports H5N1 in poultry. Sporadic human cases are reported through March.
24 Jan 2004	Cambodia reports H5N1 in poultry.
27 Jan 2004	Lao PDR reports H5N1 in poultry.
1 Feb 2004	Investigation of a family cluster of cases, which occurred in Vietnam in early January, cannot rule out the possibility of limited human-to-human transmission.
2 Feb 2004	Indonesia reports H5N1 in poultry.
4 Feb 2004	China reports H5N1 in poultry.
Mid- March 2004	Reports of human cases end. In total, 12 cases (8 fatal) occurred in Thailand, and 23 cases (16 fatal) occurred in Vietnam.

WAVE II	
Jun/Jul 2004	Recurrences of H5N1 in poultry are reported in Asia again.
7 Aug 2004	Malaysia reports H5N1 in poultry.
12 Aug 2004	Vietnam reports three new human cases, all fatal. One more fatal case is reported on 7 Sept.
9 Sept 2004	Thailand confirms a fatal case of human infection. Four more human cases are reported in October.
5 Oct 2004	Chiron Corporation notifies the U.S. Department of Health and Human Services (DHHS) that none of its influenza vaccine would be available for distribution in the United States. for the 2004-05 influenza season, because of possible contamination, which created vaccine shortage in the United States.
Nov 2004	No further human cases are reported. Altogether, 5 cases (4 fatal) occurred in Thailand, and 4 cases (all fatal) occurred in Vietnam in this second wave.
WAVE III	
Dec 2004 – Jul 2005	Human cases continue to be reported throughout Southeast Asia.
23 Jul 2005	Russia reports outbreaks of highly pathogenic avian influenza, subsequently confirmed as H5N1, in poultry in western Siberia.
2 Aug 2005	Kazakhstan reports H5N1 outbreak in poultry in areas adjacent to Siberia.
12 Aug 2005	Mongolia reports H5N1 in migratory birds.
29 Sept 2005	WHO calls on world governments to take immediate steps to address the bird flu threat, saying as many as 150 million people may die in the event of an H5N1 pandemic.
6 Oct 2005	President Bush summons vaccine manufacturers to a White House meeting in the hopes of encouraging them to step up their quest to create a bird flu vaccine.
6 Oct 2005	Research describes reconstruction of the lethal 1918 pandemic virus, concludes that this virus was entirely avian, and finds some similarities with H5N1.
7 Oct 2005	Swiss drug maker Roche urges consumers not to buy its flu drug Tamiflu over the Internet, warning of the risk of counterfeit pills.

13 Oct 2005	Turkey confirms H5N1 in poultry.
17 Oct 2005	Greece announces its first case of bird flu, making it the first country in the European Union to report infection.
18 Oct 2005	Roche says it will consider granting other companies licenses to make the anti-viral drug Tamiflu.
20 Oct 2005	Romania confirms H5N1 in poultry.
23 Oct 2005	UK confirms H5N1 in an imported parrot.
26 Oct 2005	Croatia confirms H5N1 in wild birds.
1 Nov 2005	The WHO's official count of human cases of H5N1 reaches 122, with 62 deaths, in Vietnam, Thailand, Indonesia, and Cambodia. President Bush announces he will ask Congress for $7.1 billion in emergency funding to prepare the country for a possible flu pandemic.
	As of December 2005, H5N1 avian influenza has not been found in North America – there are no records of positive tests in wild or domestic birds, and no known human cases of illness.
16 Jan 2006	United States pledges $334 million to global fight against avian influenza at the International Pledging Conference on Avian and Pandemic Influenza in Beijing, China.
Jan 2006	In early January, two human cases of H5N1 infection, both fatal, are reported in rural areas of Eastern Turkey.
Feb 2006	Iran confirms H5N1 in wild birds. Nigeria, Iraq, Italy, Azerbaijan, Bulgaria, Cyprus, Greece, Slovenia, Germany, Switzerland, Austria, France follow suit.
1 March 2006	Indonesia confirms a fatal case of H5N1 in a 12-year-old girl.
8 March 2006	China reports the country's 10th human death from H5N1 avian influenza.
14 March 2006	Azerbaijan reports its first three cases of human infection with the H5 subtype of avian influenza virus. All three cases are fatal. As of this date, no cases have been reported in the United States or Canada yet.

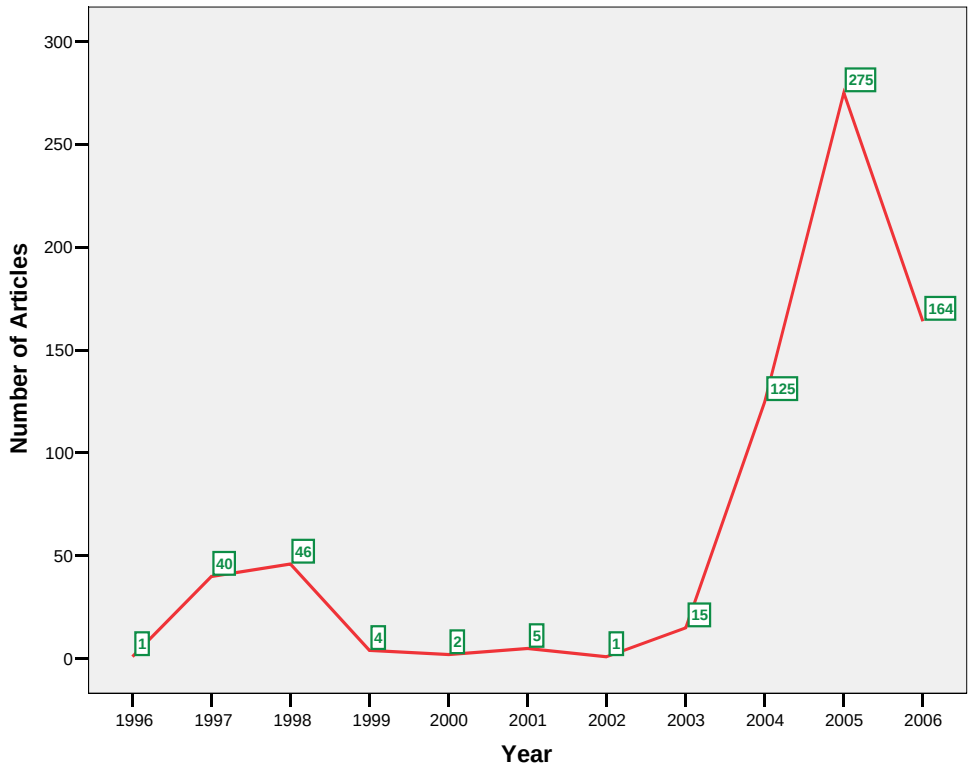
Appendix C



AJC – Atlanta Journal-Constitution
CST – Chicago Sun-Times
NYT – New York Times
ST – Seattle Times

Number of articles in each newspaper, 1996 – April 30, 2006

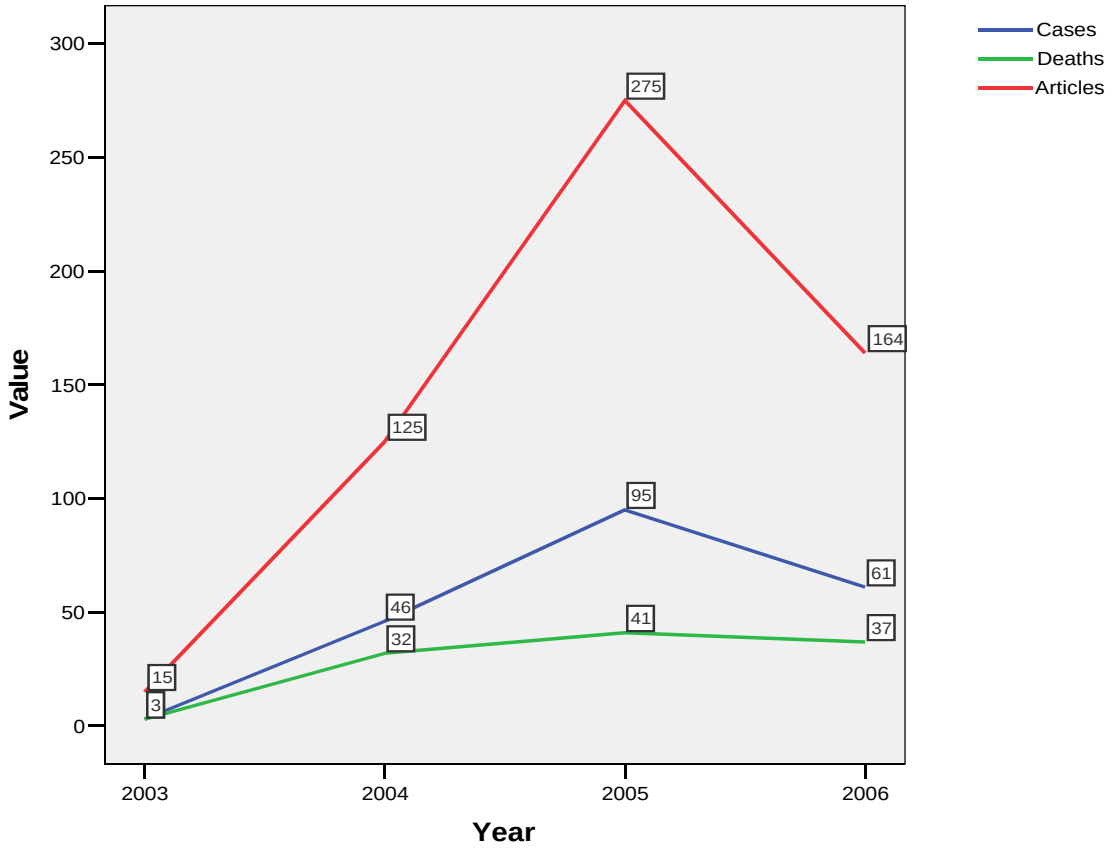
Appendix D



Number of Articles for the period 1996 – April 30, 2006

As reports of H5N1 in birds and humans appear, there is a rise in number of articles. Respectively, there is a decrease in number of articles in the years when bird flu activity is not so pronounced.

Appendix E



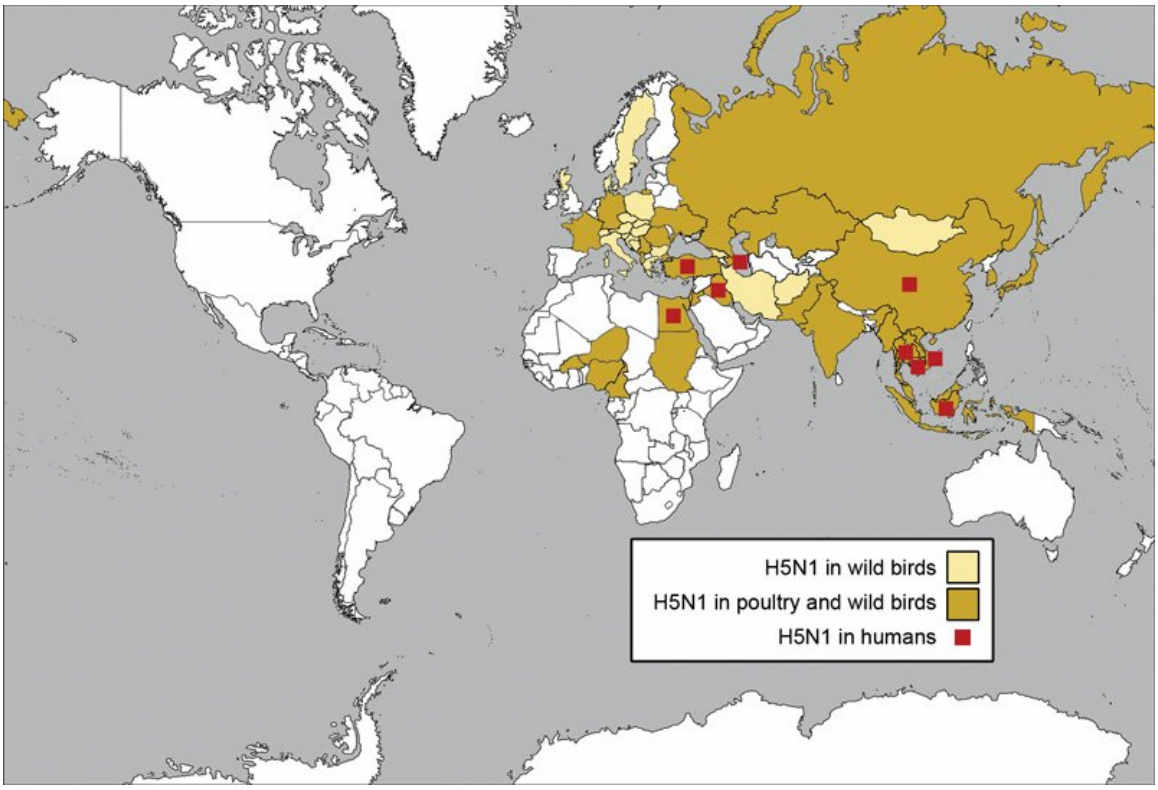
Number of H5N1 bird-flu confirmed cases, number of deaths and number of articles as of end of April 2006
Source: WHO
http://www.who.int/csr/disease/avian_influenza/country/cases_table_2006_04_27/en/index.html

Appendix F

List of Codes

Category	Code	Description
Frames	blame	Who is to blame for the disease/the spread of the virus?
Frames	communication	References to communication issues (between public health agencies and federal government; between public health agencies/government and the public; communication with media; media failure to cover situations properly, etc.)
Frames	criticism	
Frames	earlier epidemics/crises	References to earlier flu pandemics/epidemics; other epidemics (AIDS, etc.) and/or crises occurred earlier (Sept.11, Hurricane Katrina, etc.)
Frames	effects/impact of the virus	Effect on economy; tourism; lifestyles; diet; estimates about deaths; effects on individuals and society. Expectations/predictions about effects, etc.
Frames	globalization/global action needed	References about globalism; how easy it is for the virus to travel around the globe; how all would be affected in an event of a pandemic; how this is a global problem, not just confined to certain countries; call for global efforts to combat the virus, etc.
Frames	health scare/fear	
Frames	microbes/viruses evolving	
Frames	changes	Changes occurring/calling for changes in society, public health; legal changes, etc.
Frames	personifying the virus	Attaching human qualities to the virus; making the virus seem 'alive.'
Frames	pessimism	Doubts that a pandemic is actually going to occur. All hype is in vain, unnecessary, etc.
Frames	preparedness	How well/poorly the U.S./the world is prepared for a flu pandemic; other references to preparedness.
Frames	response in event of pandemic	
Frames	terrorism/bioterrorism	Mentions implicitly or explicitly how the virus can be a weapon of mass destruction used by terrorists. Any mentioning of the virus in the context of terrorism.
Frames	uncertainty/mystery	Not knowing anything for certain (e.g., when the pandemic would occur, how severe it would be, etc.).
Frames	vaccines/drugs	Lack of vaccine; effectiveness of current vaccine; how hard it is to produce enough vaccine quickly; vaccine shortage; who gets it first; other references to vaccine and drugs.
metaphors	Christian/biblical metaphors	
metaphors	disaster metaphors	Fire metaphors; hurricane metaphors.
metaphors	race metaphors	Science is racing the virus.
metaphors	war/military metaphors	
myths	hero(es)	Physicians, medical professionals, public health people, etc. are portrayed as heroes; "virus busters" monitoring and following the virus around the globe; risking their health, etc.
myths	plague	References to the virus and a pandemic as the next plague.
myths	the other world	Talks about where the virus came from (China, Asia, etc). Descriptions of the way people are in the "other world".
myths	victim(s)	People who died from the virus; anyone who might be “suffering” in any way from the virus.

Appendix G



Map showing nations with confirmed cases of H5N1 avian influenza in wild birds, poultry and humans (April 14, 2006).

Source: ***U.S. Department of Health and Human Services***
http://www.pandemicflu.gov/images/popmap.jpg

Appendix H

Country	2003		2004		2005		2006		2007		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
Azerbaijan	0	0	0	0	0	0	8	5	0	0	8	5
Cambodia	0	0	0	0	4	4	2	2	0	0	6	6
China	1	1	0	0	8	5	13	8	0	0	22	14
Djibouti	0	0	0	0	0	0	1	0	0	0	1	0
Egypt	0	0	0	0	0	0	18	10	2	2	20	12
Indonesia	0	0	0	0	19	12	56	46	6	5	81	63
Iraq	0	0	0	0	0	0	3	2	0	0	3	2
Nigeria	0	0	0	0	0	0	0	0	1	1	1	1
Thailand	0	0	17	12	5	2	3	3	0	0	25	17
Turkey	0	0	0	0	0	0	12	4	0	0	12	4
Viet Nam	3	3	29	20	61	19	0	0	0	0	93	42
Total	**4**	**4**	**46**	**32**	**97**	**42**	**116**	**80**	**9**	**8**	**272**	**166**

Cumulative number of confirmed human cases of avian influenza (H5N1) reported to WHO, February 6, 2007

Source: WHO
http://www.who.int/csr/disease/avian_influenza/country/cases_table_2007_02_06/en/index.html

Vita

Kunka Dineva Ignatova was born in Bulgaria on May 11, 1977. She graduated from the American University in Bulgaria in 1999, with a bachelor's degree in journalism and mass communications. She came to the United States in August 2000 to pursue a master's degree in public relations at the College of Communication at the University in Tennessee. In 2003 she enrolled in the doctoral program at the college. Her area of concentration is health communication with a secondary interest in public health.