Ethical Principles and Legal Reform Related to Non-pharmaceutical Interventions during an Influenza Pandemic

By

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Abstract

Pandemics are the most dramatic representation of influenza. Three have occurred in the 20th century; the 1918, 1957, and 1968 influenza pandemics and have caused considerable morbidity and mortality. “History repeats itself” is a fond saying reminding us that, not always but frequently, what has happened before can, when we least expect it, happen again. Although we experience the “flu” seasonally, an influenza pandemic differs greatly in intensity and must be respected.

Many methods of containment and prevention are used during times of influenza pandemics. These tactics include preventative vaccination of the public, prophylaxis and treatment with antiviral medications, and quarantine and isolation.

Quarantine and isolation are effective uses of disease containment, however they must be used carefully and require the understanding of society and the time in which we live. The ethical and legal concerns become difficult if the public’s compliance is minimal. Although mandatory quarantine is a potentially powerful tool in the hands of governing bodies, will the capability exist to implement it effectively and, more importantly, should it be put into practice? A crucial foundation of public health and law is the safeguarding of individual liberty while protecting and promoting the health of its citizens. A way to remain prepared and clear headed during a time of rapid decision making and uncertainty is to establish up front an ethical and legal framework to be followed. This paper addresses ethical principles and legal reform related to non-pharmaceutical interventions during an influenza pandemic and will consider past evidence, areas of possible conflict and recommendations in relation to North Carolina’s influenza pandemic preparatory plan.
Introduction

This paper will focus on an explanation of influenza, its epidemiology, history, containment, and mitigation. It will thoroughly investigate non-pharmaceutical interventions, explicitly quarantine and isolation, and the ethics and legal preparations to be considered if such a course of action is employed. At the heart of this discussion are the ethical principles so strongly adhered to by public health practitioners. It will consider the point at which the interests of public welfare prevail over civil liberties of the individual.

An influenza pandemic is inevitable and is a real threat to human defenses against disease based on previous history of significant genetic changes in the virus. Influenza can cause significant morbidity and mortality as well as social and economic disruption. Despite a great deal of research, little has happened to truly change the course of certain outbreaks. In the US today approximately 36,000 people die from seasonal influenza related illness each year and it is predicted that a pandemic could cause 65,300 deaths in the US (Cinti, 2005). Although considerable attention, resources and expenditures are being utilized with the purpose of preventing and responding to an influenza pandemic, it is disputable as to the true workability of such efforts. The US government places great weight on scientific solutions for containment, such as vaccinations and antivirals, but insufficient supply and the rapid spread of this disease may overpower such measures. Non-pharmaceutical interventions are another form of mitigation and control but their use raises issues of infringement on individual rights and ethical use. The effectiveness of public health implementation in most instances is difficult to evaluate because variables are ever changing and ephemeral. People, diseases and environments rarely remain static and research is often limited due to budget constraints.
This paper will focus on an explanation of influenza, its epidemiology, history, containment, and mitigation. It will thoroughly investigate non-pharmaceutical interventions, explicitly quarantine and isolation, and the ethics and legal preparations to be considered if such a course of action is employed. At the heart of this discussion are the ethical principles so strongly adhered to by public health practitioners. It will consider the point at which the interests of public welfare prevail over civil liberties of the individual.

**The Influenza Virus**

The influenza virus was first isolated in a laboratory in 1932 but was first referred to as early as 412 BC (Potter, 2001). It has, radiating from its surface, multiple copies of two glycoproteins, hemagglutinin (HA) and neuraminidase (NA).

Several facts, related to the epidemiology of the influenza virus, are significant. First, antibodies to these proteins equate to immunity. Second, mutations that emerge constitute the variation known as an “antigenic drift” which is commonly known as the seasonal flu. In contrast, the emergence of a completely new influenza virus is known as an “antigenic shift” and is what can cause a pandemic due to the lack of immunity in the population (Potter, 2001). A characteristic that makes the influenza virus prone to mutations is the absence of correcting enzymes, resulting in a higher likelihood of the development of a variety of new influenza viruses with new capabilities of overcoming protective immunity or infecting new hosts.
Mode of Transmission

The virus enters the body by binding to the epithelial cells of the lungs and throat after being inhaled and then proceeds through a complex process of replication with the host cell dying after completion. Influenza is transmitted to humans predominantly via air droplets and bird droppings and is transferred among humans when a person coughs, sneezes or talks. The average incubation period is 36-48 hours before onset of symptoms. The infectious state of the influenza virus remains indefinitely at very low temperatures and for about 1 week at body temperature; however, it can be inactivated easily with disinfectants. Although certain characteristics of the influenza virus are not well understood, global surveillance of seasonality seems to be common, allowing us to identify certain trends and characteristics. Peak periods occur in the Northern Hemisphere from November to March, April to September in the Southern Hemisphere, and year round in tropical regions (Cox & Subbarao, 2000). Symptoms of Influenza consist of sudden onset of fever lasting 3-5 days, chills, headache, muscle pain, weakness and sometimes upper-respiratory infection and cough.

History of Influenza Pandemics in the United States

In order to predict the future it is helpful to understand the past and this is especially important in regards to the influenza virus. Influenza outbreaks can be traced back with some accuracy for the past 400 hundred years with ten possible pandemics since AD 1590. Influenza pandemics have occurred three times in the 20th century, and history and science suggest that the country and the world could face one or more pandemics in this century (Potter, 2001). Before delving into the past it is vital to understand the difference between pandemics and epidemics in regards to the nature of the flu as well as mechanisms of preparation and reaction to containment.
Pandemic or Epidemic

To be called a pandemic two conditions need to be satisfied. First it must originate in a specific geographical area, spread across the world infecting millions and cause a large number of deaths. Second, pandemics are due to virus reassortment or antigenic shift which results in the appearance of a completely new strain of influenza virus or a newly discovered variation of the influenza virus that caused the 1918 outbreak, H1N1 (Morens & Fauci, 2007). This pandemic novel influenza virus cannot be related to those seasonal influenza viruses that were circulating previous to the pandemic and could not have arisen as a mutation, therefore the general population has no prior immunity (Cinti, 2005). Influenza pandemics appear to occur at 10-50 year intervals but predictability is extremely precarious and debatable.

Influenza “epidemics” on the other hand, appear and then usually die out in several weeks or months. Influenza epidemics are differentiated from pandemics in that they occur yearly (seasonal flu) and are due to antigenic drift which is a mutation from a previous influenza strain that occurs within the virus at the hemagglutinin (HA) or neuraminidase (NA) site. (Potter, 2001) This newly mutated strain is different enough to warrant a new vaccine but not so serious as to cause a large variation in mortality or morbidity rates.

Pandemics in the 20th Century

The “Spanish” influenza (H1N1) pandemic of 1918 was one of the most dramatic events in medical history and one of the greatest calamities with a worldwide estimated death total of 50 million people. Unlike other flu outbreaks, young adults between the ages of 15-35 were affected the most and had the highest mortality rates (Morens & Fauci, 2007).
The origins of the Spanish flu pandemic have never been definitely established and the basis for the high death rate is still a mystery and so this is a pandemic that has been deliberated over and one that has been well researched. Furthermore, no evidence of previous strains of this type of flu has been recorded (Morens & Fauci, 2007).

The Asian influenza pandemic of 1957 originated in Yunan, China and had an approximate global mortality of 2 million. This influenza virus, known as H2N2, was a genetic reassortment of the circulating H1N1 and influenza A avian virus. It clinically affected about 25% of the population and most deaths were due to secondary bacterial pneumonia (Cox & Subbarao, 2000). The targeted population with the highest infection rates during the 1957 pandemic included school children, young adults, pregnant women and the elderly.

The “Hong Kong” pandemic of 1968 was a reassortment virus (H3N2) of HA from an avian influenza as well as other gene segments from the circulating H2N2 influenza virus. The number of deaths due to this pandemic was lower, at 1 million, with half of the influenza related deaths being people under the age of 65 (Cox & Subbarao, 2000). The lowered mortality numbers may be due to some population immunity from the 1957 Asian influenza pandemic.

**Containment and Disease Outbreak Strategies**

Many methods of containment and prevention are used during times of influenza pandemics. These tactics include preventative vaccination of the public, prophylaxis and treatment with antiviral medications, and quarantine and isolation.
Vaccination

Due to the nature of a pandemic, vaccination procedures will differ from those during non-pandemic situations, where targeted vaccination of the population is sufficient. During a pandemic, several obstacles must be overcome including barriers to rapid mass vaccination of high risk populations. In order to mitigate the spread of a pandemic, vaccination must cover a large enough percentage of the population in order to produce herd immunity. Since production of a suitable vaccine takes approximately six to nine months and because new strains may suddenly appear, there is a distinct possibility that influenza could spread across the globe before sufficient vaccine could be produced and administered (Patriarca & Cox, 1997). Limited supply of vaccine is another obstacle, especially given that not only allocation but reallocation of vaccine may be necessary (WHO Department of Communicable Disease Surveillance and Response, 2004). The North Carolina Vaccine Preparedness and Response Plan acknowledges the delay of vaccination production issue and that demand may exceed supply for some time. A priority distribution list is included in the influenza pandemic preparation vaccination plan. Studies have shown that pneumococcal pneumonia, a secondary result of influenza infection, is the major cause of death, so vaccination to this disease would also be necessary. Liability coverage for vaccine manufactures and providers is another concern.

Antivirals

The use of antivirals during a pandemic is another essential practice in the prevention and treatment of influenza and may decrease morbidity and mortality, according to the World Health Organization (WHO Department of Communicable Disease Surveillance and Response, 2004).
Unfortunately, supplies of antivirals may not be stockpiled sufficiently to meet the population’s needs in many countries, including the US. In the NC Influenza Pandemic Preparedness plan it is assumed that adequate quantities may not be available and a plan for distribution to high priority groups is in place. In the event that vaccine is unable to be manufactured in the necessary time to influence an influenza pandemic, antivirals could be a crucial factor in slowing and curtailing the further spread of influenza. The WHO has said, “Fewer nations prioritized antivirals (49%) than vaccine (62%). This is an unexpected finding since antivirals may be the first—and, perhaps, the only—pharmaceutical intervention available to many countries in a pandemic” (PLoS medicine: Priority setting for pandemic influenza: An analysis of national preparedness plans.)

Antivirals include rimantadine, oseltamivir, azanamivir and amantadine and can be used as prophylaxis and/or treatment. The financial benefits of using antivirals as prophylaxis or treatments are difficult to calculate. However, if fewer people become sick or have the flu for a shorter period of time, there will naturally be a decrease in lost work days and a decrease in hospital admissions.

Quarantine and Isolation

Quarantine and isolation are considered non-pharmaceutical interventions used to break the spread of infectious disease. Although vaccination and antivirals have been used for some time, quarantine as a method to limit infectious disease has been employed as far back as the yellow plague. In The Early History of Quarantine: Origin of Sanitary Measures Directed against Yellow Fever, published in 1903, John McCauley Eager writes “The history of quarantine is closely interwoven with that of medicine in general and of shipping. We read of
these practices being applied against leprosy in biblical times, and Captain Cook, the English navigator, tells us that the savages of the South Sea Islands, who had not advanced beyond the Stone Age at the time of his visit to those islands, resorted to rude sanitary precautions in the case of arrivals from neighboring places (*Eager, 1903*)

Quarantine, as we can see, is an instinctual and certain form of disease control and despite radical technological and medical advances, it is still a viable precaution. In fact sole reliance on vaccination and/or antivirals discussed earlier is precarious as every public health body has suggested that they will be insufficient once a pandemic has started; hence non-pharmaceutical interventions are a valuable and necessary tool.

In this discussion it is appropriate to differentiate between isolation and quarantine in order to understand the possible ethical and legal ramifications. Isolation refers to separation of a person or persons with a specific infectious illness while quarantine is separation of those who have been “exposed” but are not exhibiting symptoms of the infectious disease. Both are used to protect the unaffected public from possible contagion. The definition of quarantine and isolation may be broadened to include social distancing methods such as snow days, cancellation of public gatherings, etc. (Public health law program)

Is Quarantine Effective and Useful?

Despite the fact that quarantine and isolation have been used in the past and with frequency in different settings, a brief discussion of effectiveness and usefulness is in order. In a study initiated by the American Medical Association on the “Nonpharmaceutical Interventions Implemented by US Cities during the 1918-1919 Influenza Pandemic”, findings showed lower morbidity and mortality rates in cities which initiated early, sustained, and layered non-pharmaceutical interventions than in those which did not (Markel, 2007). Some researchers have
said that the mass use of quarantine and isolation by several countries during the outbreak of SARS limited the spread of the disease (Day, Park, Madras, Gumel, & Wu, 2006). Additionally, if we return to the way in which the influenza virus is transmitted, it is logical to assume that distancing of those exposed to the unexposed would limit contagion. An article by the Johns Hopkins Bloomberg School of Public Health applied the question of effectiveness to these measures employing probabilistic models. The results suggested isolation to be very effective in minimizing infections if strictly adhered to. If isolation is not properly put into practice, then quarantine is most advantageous when “…there is significant asymptomatic transmission and if the asymptomatic period is neither very long nor very short…” (Day et al., 2006)

Isolation and quarantine raise issues of social justice, legal, and financial challenges which must be taken into serious consideration before resorting to these measures. However, with the limited supply of antivirals, the probable rapid spread of a novel influenza virus and the difficulty of manufacturing an adequate vaccine supply, non-pharmaceutical interventions are important steps in the mitigation of a pandemic.

**Voluntary and Mandatory Quarantine**

If we agree that quarantine and isolation are useful, the matter is not if but how it should be put into operation. The ethical answer to this question is to use the least restrictive effective methods first. If voluntary isolation, quarantine and social distancing procedures are followed properly, then a voluntary approach would be the safest, easiest, and most cost effective practice. The dilemma is that, this may not happen. According to a study published by the Journal of Epidemiology, “When Is Quarantine a Useful Control Strategy for Emerging Infectious Diseases?” Cooperation of the public will depend upon the circumstances.(Day et al., 2006) For example, issues that will shape community support will include an understanding of the risk
involved in ignoring such a request or the economic hardship involved in honoring such a request (Day et al., 2006). Consequently, if residents conclude the disadvantages outweigh the advantages of adhering to voluntary quarantine, it may not protect the population. Unfortunately, research on this subject is limited, but we can look at studies that have dealt with past experiences of these interventions and other issues related to compliance.

Vaccination is a measure that may be associated with community cooperation as it entails some risk. Several of these studies highlight some of the considerations to weigh before initiating mandatory measures and the challenges involved. One such study by the Department of Mathematics at McMaster University in Canada, “Group Interest versus Self Interest in Small Pox Vaccination Policy”, addresses this concern by formulating an epidemic model and presenting a synthesis of game theory. The study ultimately showed that voluntary vaccination is unlikely to reach the optimal group level if individuals decide whether to be vaccinated according to self-interest (Bauch, Galvani, & Earn, 2003)

Another example suggests that voluntary vaccination would not be sufficient to maintain adequate levels of vaccination. This is dependent largely on the perceived risk of the public. Public health officials would be well advised to focus on education of the public in relation to the seriousness of a specific disease. An example of false reliance on public cooperation is the 1970’s pertussis scare in Great Britain. It was reported that a drop in coverage, which led to a lack of herd immunity, preceded a large outbreak of pertussis, also known as whooping cough. This, it seems, happened after a reliance on voluntary vaccination by the public (Bauch et al., 2003)
It may also be helpful to look at examples of quarantine being used as a method of containment of infectious disease. Mandatory quarantine in reaction to the HIV/AIDS epidemic in Cuba and the 2003 SARS outbreak are two such examples.

Government imposed mandatory quarantine of seropositive HIV persons was implemented by Cuba when the discovery of AIDS as an infectious disease emerged (Perez-Stable, 1991). Although the political climate and culture in Cuba differs from the United States, it is valuable to recognize the benefits and drawbacks associated with mandatory quarantine during this time period.

Benefits include:

- Few new infections
- Opportunities for focused education

Drawbacks include:

- Loss of individual freedom and procedural due process
- Accidental quarantine of false positive tested people (Perez-Stable, 1991)
- Enforcement is expensive and may undermine other public health policies
- A democratic government may hesitate to use deadly force to impose mandatory quarantine.

Quarantine was again used for the first time in decades in Canada, China, Hong Kong and Singapore during the 2003 global outbreak of severe acute respiratory syndrome (SARS). Although it is difficult to clearly credit the successful utilization of quarantine as stopping the SARS outbreak, it does point to some successful and promising implementation of this method. For one thing, SARS did not become a pandemic and it has not re-emerged. Another important fact is that the onset to diagnosis time of SARS could be as much as a week, during which the person is contagious, so isolation would not be effective or sufficient as a sole method (Fraser,
Riley, Anderson, & Ferguson, 2004) Quarantine in each of these countries was aggressively applied but not in the same fashion.

In Canada, the majority of the population was cooperative to recommended control measures, including home and work quarantine. Health care workers were mandated to wear masks in public, stay away from their family members, and not deviate from their route to work and home. An entire school of 1700 children were quarantined when one student was diagnosed with SARS. In Hong Kong, Singapore and China, quarantine was not completely voluntary; measures were taken to persuade the public. Strict laws of punishment in China were passed to imprison or execute those who broke quarantine laws and in Hong Kong barriers were erected in areas suspected of SARS infection (Ries, 2004)

Although the examples of influenza outbreaks in Asia and Canada show the possibility of public cooperation in a time of quarantine, cultural differences must be considered. The statutes are in place (refer to Appendix A) and not terribly complicated but as an editorial in The Journal in Public Health Management pointed out, “The procedural requirements and operational mechanisms of many public health options are complex. Legal preparation especially at the local level will be essential to ensure both an effective and appropriate response to a looming pandemic threat.” (De Ville, 2007)

In mentioning the above examples it is important to include the different cultural aspect of societies. Asia and Canada hold a much more compliant attitude towards authority and may be more susceptible or less threatened by “suggestions” offered by public health officials. The political systems are also different. Americans are very protective of their freedom and would fight against any sort of extreme measure or excessive force exhibited by the government. An approach to matters of authority by a socialist or communist society differs to Americans who
value a “hands off” approach and are a highly individualistic culture. Exploration of communitarian perspectives by Amar Etzioni has revealed a certain characteristic of American society. He states that there exists a contradiction in American values; Americans desire their freedom and individualistic rights but refuse to sacrifice. An example he uses is our legal system. We demand to be judged by our peers but do our best to “get out of” jury duty. This mentality suggests that it is the other person’s duty to fulfill our expectations (Etzioni, 1995). In much the same way, some Americans want “the other people” to adhere to vaccination, isolation, and quarantine orders while maintaining their individual freedom and “right” to choose not to be compliant with these measures of disease control.

**Constitutional Rights and Quarantine**

Despite viewpoints in support of or against non-pharmaceutical interventions, these examples raise issues of social justice, legal and financial challenges which should be taken into serious consideration before resorting to these measures. Quarantine and Isolation restrict individual liberty and it is important as public health practitioners that we remain aware of the fine line between the protection of the community and social justice. Police power, as public health authority, is reserved to states under the U.S. Constitution’s 10th amendment. The Constitution’s requirements favor the least restrictive means necessary when applied to individual freedom. Therefore, it is always in the spirit of the constitution to begin with voluntary interventions. The U.S. Constitution addresses due process and the limitations of the federal government in the 5th Amendment when it proclaims that a citizen cannot “… be deprived of life, liberty, or property, without due process of law” and in the 14th Amendment when it applies “due process” to states. Procedural “due process” rights include the right to notice, the right to counsel at certain stages, the right to hearing on request and, the reasonable
belief for detention. Substantive “due process” rights require that the exercise of the police power to regulate lives must be rationally related to protecting the public health or safety.

Applying these constitutional rights in regards to quarantine and isolation means that an individual has a legal expectation to fair treatment during this time period, a right to information and evidence to show that the burden imposed solves a health or safety problem. (Public health law program).

**Legal difficulties and financial burdens of imposing quarantine**

Life, liberty and justice of the individual are not the only concerns related to mandatory quarantine and isolation. Legal difficulties and financial burdens may be placed on the state and contributing institutions. Even if the state follows statutory practices and due process, problems may still arise which can last way beyond the crisis. Two cases are summarized below relating to this topic.

*Best v. Bellevue Hospital, New York (2004)*

A non-infectious TB patient was confined when he refused treatment and sought to leave the hospital. The patient later filed suit against the health department and hospital. The health department prevailed, however it took 4 hearings and 7 administrative and state and federal judicial orders over 2 years.

*Toronto v. Deakin, Ontario, Canada (2002)*

A tuberculosis patient detained against his will after several outbursts and attempts at escape challenged the state, arguing his constitutional liberty rights were violated. In this judgment, the court accepted his Charter rights were violated but justified to protect public health and prevent the spread of TB (Ries, 2004)
The Ethics of Quarantine

“…public health is empowered to restrict human freedoms and rights to achieve a collective good, but it must do so consistent with constitutional and statutory constraints on state action. The inherent prerogative of the state to protect the public’s health, safety, and welfare (known as the police powers) is limited by individual rights to autonomy, privacy, liberty, property, and other legally protected interests.” (L. Gostin, 2006) When we combine this description of public health and law it naturally bridges into the realm of social justice. Public health is concerned with the rights of individuals and communities which may come into conflict with one another. The choice when facing quarantine and of how to incorporate quarantine is naturally one of great concern to this field simply by its nature. Justice requires the fair and proper administration of laws; social justice takes this a step further into the “natural” rights of people. The Constitution of the United States is a perfect example of our country’s high regard for freedom, health, liberty, etc. Again returning to the quote above, despite the “power” that is afforded to public health officials it is also constrained by its innate ethical obligations. Safeguards laid in place by Constitutional and governmental laws keep a close watch on this by requiring due process or the right of an individual to defend himself and to be allowed the time and means to do this. The ethics of this situation and the fine line between individual freedom and societal interests come into play when we are considering the cost of restricting the rights of an individual in order to protect the health of our community. There are legitimate examples of individual rights being overshadowed while securing the safety and protection of the public. A court appeal is summarized below as a case in point.
**Henning Jacobson v. Commonwealth of Massachusetts (1904)**

A citizen of the Commonwealth of Massachusetts was sentenced by the court to pay a fine of $5, after refusing vaccination which was required during a time of smallpox infection. He appealed to the Massachusetts Supreme Court and lost. He then appealed to the U.S. Supreme Court, alleging that his constitutional rights were violated. In summary the U.S. Supreme Court responded with...

“We are not prepared to hold that a minority, residing or remaining in any city or town where smallpox is prevalent, and enjoying the general protection afforded by an organized local government, may thus defy the will of its constituted authorities, acting in good faith for all, under the legislative sanction of the state. If such be the privilege of a minority, then a like privilege would belong to each individual of the community, and the spectacle would be presented of the welfare and safety of an entire population being subordinated to the notions of a single individual who chooses to remain a part of that population...”

This authority granted to the state, however, is a fragile one which can be abused. For example, a gross unethical use of mandatory quarantine was used by the US president, when in 1900 he ordered a quarantine of all Chinese and Japanese residents of San Francisco after the body of a bubonic plague victim was discovered in Chinatown. It was insinuated that the staple of the Asian population, rice, was the source of the contagion and was therefore spread by these people. This was clearly an abuse of power under the guise of sincerity and good intentions- a case of purposeful misinformation and cruelty.

**NC Influenza Pandemic Preparedness Plan**

Without long-range planning, health departments may find crises, such as a disease outbreak, or a new or perceived health risk driving their priority setting and policymaking. Public
health, emergency management, and law enforcement must lay out a plan up front and educate the public on the importance of these procedures in containing pandemic influenza. North Carolina has an excellent influenza pandemic plan that was revised in 2006 and again in pertinent areas in 2009 (further reference to complete influenza pandemic plan can be found at http://www.epi.state.nc.us.libproxy.lib.unc.edu/epi/gcdc/pandemic.html). The NC sentinel surveillance system includes participation of 95 health providers and 56 counties. Influenza-like illnesses are reported weekly to the CDC and “Threshold Determinants for the Implementation of Community Containment Measures” are in place beginning with the least restrictive voluntary quarantine, isolation and social distancing methods. Very little documentation can be found on mandatory quarantine. Prevention, education and vaccination are the primary focus of the NC Department of Health and Human Services (DHHS) and this includes education of the public through local health facilities, the media, hotlines and the internet. In order to prevent the rapid spread of influenza, NC has encouraged businesses to offer extra sick time, mandatory vaccination of health care workers, and free vaccination clinics for children and their parents.

Although this preparedness plan has been well designed and follows the recommended guidelines in great detail as well as having a specific task force appointed in order to keep these issues up to date and exhaustive, it is essential to continue to ask the pertinent questions. When or if the pandemic occurs will the necessary pieces fall into place? Will the plan, albeit neatly considered on paper, be able to translate in a crisis? What stakeholders are necessary and are each playing together as a team or looking out for their individual interests and department goals? Although the Director of the DHHS has certain powers granted to him/her, will these be
utilized appropriately and promptly? How and by whom is it determined when to use governmental intervention to enforce safety measures at the risk of individual liberty? If mandatory quarantine is not planned due to inadequate research or differing findings, what will happen in the event of an emergency?

Legal Reform

The question of whether to use mandatory quarantine or voluntary quarantine and at what point to switch from one to the other is an ethical and intellectual question. However, the use of quarantine as a way to mitigate or decrease the spread of influenza is not debatable. In the event that quarantine or isolation would need to be implemented, preparatory planning, statutory and environmental capabilities would need to be in place and ready.

A public health report published by the U.S. Department of Health and Human Services in 2003 addressed public health emergencies and legal reform. Even though legislative bills and resolutions have been addressed and adopted since this report, some arguments for reform are still valid and worthy of consideration today. The report specifically defended the Model State Emergency Health Powers Act (MSEHPA) which was collaborated on and written by influential organizations, and political and public health representatives as a response to inadequate existing public health laws (L. O. Gostin & Hodge Jr, 2003). Four reasons for reform were recommended:

1. State public health laws are outdated and ambiguous
2. Many of the laws are inconsistent among states
3. There is inadequate planning, especially related to stockpiling of antivirals, and inadequate preparation of communication and coordination amongst local law enforcement and public health agencies
4. Ineffectiveness of existing public health laws
North Carolina has done a thorough and admiral job of remedying many of these problems. A committee of various stakeholders took each topic of consideration recommended by the World Health Organization, the US Department of Health and Human Services and Centers for Disease Control and Prevention and outlined a plan. Included amongst these topics, is a NC community containment plan and an article on ethics written by The NC Institute of Medicine Ethics Task Force (*North Carolina pandemic influenza plan.*)

The community containment plan and ethical guidelines address the subject matter of this paper. However, preparatory legal reform to grant necessary authority amongst partnering organizations is an area which can still be amended and planning is an area of discussion that can always be refined. I do not think that “…current laws provide necessary planning, communication, or coordination among the various levels of government, responsible agencies, or the private sector for detecting and responding to…naturally occurring infectious diseases.” (L. O. Gostin & Hodge Jr, 2003)

In conclusion, many articles have been written and numerous opinions have been presented in relation to public health law, ethics and legal reform. Each has their pros and cons which do not guarantee any absolute result. Preparation, planning, surveillance and rapid response are the best methods to intercept an influenza pandemic. In June of 2009 the Council on Linkages between Academia and Public Health, a group dedicated to the continued growth and development of public health professionals, adopted core competencies for public health professionals. Policy development/program planning skills was included among the core competencies (see Appendix ii for a list of competencies) and articulate several objectives for deliberation. These competencies are to determine the feasibility and expected outcomes of policy options, articulate the implications of policy options, manage public health programs
consistent with public health laws and regulations, and develop a plan to implement policy and programs.

An influenza pandemic is inevitable. Vaccination and antivirals are key tools of the United States in limiting pandemic influenza, but quarantine and isolation are clearly needed despite the associated challenges that come along with them, including public compliance and ethics. We need to continue to discuss the best ways to implement and prepare for quarantine and isolation. What are the best methods to prevent or slow an influenza pandemic and be ethical at the same time? When a locale is attempting to decide such an important issue as whether or not to implement stringent quarantine and isolation procedures, an algorithm or check list of items can be a starting point. I do not think it is necessary to re-invent the wheel, only to learn from past experiences. An article published in The Health Law Review in 2004 after SARS, suggests several steps that I think would be appropriate in every circumstance of decision making when deciding upon a course of action. First of all, public health officials should evaluate the goals of an intervention and its effectiveness in achieving those goals. Next, weigh the burdens this intervention may place on individuals and whether those burdens can be minimized, while maintaining the interventions efficacy. Does the intervention outweigh the burden and if so, how can it be implemented in a fair manner that does not discriminate against specific groups without justification? (Ries, 2004).

Being charged with the task of protecting the public’s health is not easy and deciding against an individual’s freedom or livelihood is a heavy load to carry. However, this is an honorable charge and one worth grappling with. Personally, I think the pursuit and protection of the common good is of utmost importance but should not be utilized as an excuse to discriminate or as a weapon of ignorance. I agree with John Adams, who stated "Government is instituted for
the common good; for the protection, safety, prosperity, and happiness of the people; and not for profit, honor, or private interest of any one man, family, or class of men; therefore, the people alone have an incontestable, unalienable, and indefeasible right to institute government; and to reform, alter, or totally change the same, when their protection, safety, prosperity, and happiness require it."*(John Adams quotes.)*
Appendix i

NC General Statutes

Several statutes in North Carolina are noteworthy in terms of instigating mandatory quarantine.

GS 130A-41 Powers and duties of local health director

This statue grants this appointed body “…the following powers and duties.” GS 130A-41(b) (4) “...to exercise quarantine authority and isolation authority pursuant to GS 130A-145”

GS 130A-145 Quarantine and isolation authority

This statute while not inclusive here, outlines the due process rights of the individual or individuals, period of quarantine (30 days) and reasons for quarantine (public health endangered).

GS 130A-152 Immunization required.

This statute outlines the immunizations required for children. It states a number of diseases such as “…diphtheria, tetanus, whooping cough, poliomyelitis, red measles (rubeola) and rubella.” Interestingly a clause is also included which states that every child shall be immunized against “…any other disease upon a determination by the Commission that the immunization is in the interest of the public health.” Further statutes require this immunization in order to enroll in school from Kindergarten to University (GS 130A-155, GS 130A-155.1) There are however no specific statutes requiring immunization of adults not attending some sort of college or university. There are even statutes requiring mandatory immunizations of animals.
GS 130A-147 Rules of Commission

This statute could be used in the event of a required mandatory vaccination emergency as it gives the Commission the authority to adopt rules for the detection; control and prevention of communicable diseases (refer to NC General Statutes for complete code (*NC communicable disease manual cover page.*)

Making use of this statute may be walking a slippery path because it would have to be proven after the fact that this action was required. It would be prudent of NC to adopt a specific statute relating to mandatory vaccination in the event of a crisis or impending crisis. With the changing times and fading history of outstanding epidemics, rumors and myths are taking hold of citizens and perpetuating fears in relation to “serious” side effects of vaccinations. Although education of the public and dispelling of certain gossip is the responsibility of public health bodies, imminent threat is a factor in the communities’ decision to undertake an action.
Appendix ii

COUNCIL ON LINKAGES BETWEEN ACADEMIA AND PUBLIC HEALTH PRACTICE
Core Competencies for Public Health Professionals

ADOPTED June 11, 2009

Policy Development/Program Planning Skills
1) Analyzes information relevant to specific public health policy issues
2) Articulates policy options
3) Determines the feasibility and expected outcomes of policy options
4) Articulates the implications of policy options
5) Utilizes decision analysis for policy development and program planning
6) Manages public health programs consistent with public health laws and regulations
7) Develops a plan to implement policy and programs
8) Incorporates policy into organizational plans, structures, and programs
9) Develops mechanisms to monitor and evaluate programs for their effectiveness and quality
10) Incorporates public health informatics practices
11) Develops strategies for continuous quality improvement
References


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