



FROM BIRTH TO DEATH AND BENCH TO CLINIC

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CHAPTER 19

Influenza Pandemic

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influenza pandemic

by Alexandra Minna Stern and Howard Markel

Framing the Issue

If the United States is confronted with pandemic influenza, communities across the country will decide which nonpharmaceutical interventions (NPI), if any, to implement before adequate vaccine and antiviral supplies are developed and distributed. NPI encompass traditional public health strategies of isolation and quarantine, school closures, and social distancing measures such as gathering bans, the cancellation of public events, and restricted transportation. Two critical questions emerge from a potential pandemic scenario: Can communities apply NPI in a manner that maximizes the common good and minimizes negative social and economic consequences? What are the ethical implications of NPI, particularly when it comes to balancing individual liberties with the need to protect the public's health?

Voluntary and Mandatory NPI: The Ethical Distinctions

The 1918–1919 influenza pandemic was the most deadly infectious calamity in human history. Approximately 40 million individuals died worldwide, including 550,000 individuals in the United States. During the 1918 pandemic, virtually every city in the United States and much of the world employed mandatory and voluntary NPI to mitigate the pandemic, making it especially tantalizing for policymakers to scour the historical record for counsel.

If we accept that a 1918-like influenza pandemic would necessitate a public health response, what criteria should we use to apply a menu of NPI that is ethical and efficacious? The historical record of past epidemics indicates that NPI work with the most benefit and least friction when they are voluntary, respect and rely on individual autonomy, and avoid the use of police powers. Furthermore, recent research indicates that the timing, duration, and choice of NPI played an important role in a community's overall pandemic outcome.

Past experiences with pandemic—even those as different as influenza in 1918 and SARS in 2003—teach us that voluntary NPI usually meet ethical criteria and often can work to empower individuals and communities to protect the public health. For example, studies of the 2003 SARS epidemic in Toronto, Canada, found that the majority of persons exposed to that virus voluntarily con-

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HIGHLIGHTS

- Nonpharmaceutical interventions (NPI) such as isolation and quarantine, school closures, and social distancing measures should be considered in the event of an influenza pandemic.
- NPI work with the most benefit and least friction when they are voluntary, respect and rely on individual autonomy, and avoid the use of police powers.
- The Centers for Disease Control and Prevention's 2007 guidelines on community mitigation recommend mandatory measures only for pandemics in which the case fatality ratio rises above 1%.
- Transparent application of NPI, with accountability and protection of civil liberties, is much more likely if communities have robust public health systems in place before a pandemic strikes.
- Federal lawmakers and policymakers must establish a framework in which individuals and communities can act to protect themselves during a pandemic.

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sented to home quarantine in order to protect the health of others. They reported “civic duty” as their primary motivation for home and work quarantine. Additionally, a 2006 Harvard School of Public Health survey found that most Americans, if confronted with pandemic influenza, would make major changes in their daily lives for up to one month to comply with recommended voluntary NPI. It is also striking that in 1918 in Chicago, one of just a handful of cities that did not order school closure, absenteeism rates neared 50% during the height of the epidemic. Of their own volition, many Americans in cities across the country sequestered themselves in their homes. Given that the 1918 pandemic coincided with a time of war and heightened patriotism, Americans were particularly inclined to heed governmental mandates. When the pandemic hit the United States in September 1918, the term “slacker,” originally applied to those who refused to support the war effort, was quickly applied to people who protested public health edicts.

Yet even as public health officials can be heartened by evidence of ethically sound and voluntary NPI cooperation, as the severity of a pandemic increases, so too will the pressure on government to enact mandatory NPI in order to mitigate transmission and reduce the case fatality rate. In the Centers for Disease Control and Prevention’s 2007 guidelines on community mitigation, mandatory measures are only recommended for pandemics whose case fatality ratio rises above one percent, which would rate them as category 4 or 5 in the Pandemic Severity Index (the 1918 flu pandemic was a category 5). Based on the 2006 U.S. population, this means that the projected deaths from pandemic influenza would have to surpass one million before mandatory measures would be recommended. Given such projections and the political and social imperatives to act in the event of a category 5 influenza pandemic, can mandatory NPI be applied in an ethical and transparent manner that inspires compliance?

The Challenges of Mandatory NPI

Broadly speaking, humans have organized mandatory NPI, such as quarantine and isolation, to mitigate the spread of contagion since antiquity. Until fairly recently, the needs, rights or even health of the afflicted (and quarantined) were rarely a primary concern among those administer-

ing such health orders. It was only in the years following the civil rights movements of the 1950s and 1960s that principles such as patient autonomy and the protection of civil liberties became legal and ethical cornerstones of public health programs aimed at mitigating infectious disease. It is important to remember the context in which mandatory NPI were implemented in 1918—an era characterized by medical paternalism and strong state authority to intervene with legal immunity in the lives of ordinary citizens.

Even so, the 1918 experience offers many examples of the application of mandatory NPI that backfired, potentially inciting undue social conflict that worsened disease transmission and, according to today’s standards, would fall far short of ethical standards. In many cities, including San Francisco and Denver, local officials passed mask ordinances requiring individuals to wear layered-gauze masks in public, despite having no clear scientific proof of benefit, and authorizing the police to fine or arrest those who did not comply. These mandatory face mask laws proved to be bad policy. Many people wore the masks incorrectly, and some engaged in subterfuge to avoid wearing them. For others, the masks provided a false sense of security from the pandemic. There were even several instances where those who issued the mask order—including both San Francisco’s mayor and health commissioner—were seen at public events with the masks dangling across their necks and not properly fastened. Some citizens formed antimask leagues and placarded the streets with antimask manifestos. There also was pushback to mandatory school closures and social distancing measures in many American cities during the fall of 1918, especially when these NPI were deactivated only to be reactivated days or weeks later when citizens felt that daily life was returning to some semblance of normality. In the worst instances, mandatory NPI pushback put society at greater risk of infection, and the haphazard application of NPI eroded the public trust.

Setting Ethical Pandemic Policy

Mandatory NPI can be implemented in an ethical and efficacious manner if we hold certain ethical principles as ideals, with the strong caveat that mandatory NPI should only be considered in the event of a category 4 or 5 pandemic.

- To begin, mandatory NPI must rest on a foun-

WHY NONPHARMACEUTICAL INTERVENTIONS (NPI) SHOULD BE CONSIDERED IN A PANDEMIC

Mandatory NPI was widely used across the United States in the 1918 influenza pandemic. In several instances, removed communities such as islands (including American Samoa) took advantage of their geographical isolation to restrict access and thus shield themselves entirely from pandemic influenza. However, these success stories were the exception, not the rule. Indeed, many communities applied NPI in less than systematic fashion, ultimately experiencing problems of noncompliance and NPI fatigue, especially when orders were enacted, rescinded, and reenacted two or more times.

Some experts remain so concerned about the secondary and unintended consequences of NPI that they refrain from recommending any course of action in the event of pandemic influenza. Yet such reticence runs contrary to the mission of public health and the common sense compulsion to act in the face of potential death or destruction. In ethical terms, inaction

can carry serious problems, in this case by violating the harm principle (which maintains that individual autonomy can be curtailed rightfully in order to prevent harm and injury to others) and disregarding escalating social risk.

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Moreover, an expanding body of research suggests that NPI can play a health-promoting role in delaying the effect of a pandemic by reducing the overall and peak attack rate, and reducing cumulative mortality. Such measures could potentially provide valuable time for production and distribution of pandemic-strain vaccine and antiviral medication. Optimally, appropriate implementation of NPI also would decrease the burden on health care services and critical infrastructure. With these aims in mind, several recently published modeling studies seek to predict the optimal times for activating and deactivating NPI, providing formulas that might be of use to local health officers.

- ation of public health science, coordination, and cooperation, not law enforcement.
- Second, NPI such as quarantine or school closures must meet the harm principle and conform to international ethical principles which require that “coercive public health measures be legitimate, legal, necessary, non-discriminatory and represent the least restrictive means appropriate to the reasonable achievement of public health goals.”
 - Finally, the principles of reciprocity, transparency, nondiscrimination, and accountability—as well the right to due process to challenge mandatory NPI—must be enforced.

One of the greatest challenges for policymakers is to accurately determine during a pandemic

unfolding in real time whether NPI meet the principle of proportionality—that the restrictions on individual liberties incurred by the NPI do not exceed what is needed to respond to a community’s assessed risk. One of the most important lessons from previous epidemics is that it is easier to include ethical guidelines in a policy paper or a set of public health guidelines than it is to ensure they are met during a moment of crisis. Transparent application of NPI, with accountability and protection of civil liberties, is much more likely if communities have robust public health systems in place before a pandemic strikes. Indeed, the 1918 experience suggests that public health departments with longer track records of community involvement and compliance, and with clear delegation of roles and responsibilities, fared better. These issues, related to agency flow charts and community buy-in, are more pressing than ever given the various layers of public health that would be involved in any response to a category 4 or 5 pandemic in the United States and around the world. Excellent organization at the local level can be stymied if there is friction with county, state, or federal entities, not to mention private, international, or commercial actors.

Federal lawmakers and policymakers have a crucial role to play in establishing the framework in which individuals and communities can act in an empowered fashion to protect themselves during a pandemic. It is important to insist on a clear delineation of what federal laws and agencies will do and what local communities will do, and where

VALUES AND ETHICAL PRINCIPLES TO CONSIDER IN PUBLIC HEALTH AND PANDEMICS

- Autonomy
- Civil liberties
- Harm principle
- Reciprocity
- Transparency
- Accountability
- Due process
- Proportionality

RESOURCES

Web sites

- www.pandemicflu.gov – U.S. government information on pandemic and avian influenza. Includes a news room, FAQs, and a glossary, as well as the CDC's 2007 community mitigation guidelines.
- www.aclu.org – the American Civil Liberties Union. Includes a 2008 report by George J. Annas, Wendy K. Mariner, and Jennifer L. Gibson, *Pandemic Preparedness: The Need for a Public Health—Not a Law Enforcement/National Security—Approach*.

Recent news

- Cornelia Dean, "Who Gets a Ventilator in an Epidemic?," *New York Times*, March 25, 2008.
- Christopher Lee, "U.S. Flu Outbreak Plan Criticized; It Does Not Anticipate Strain on Hospitals, Local Officials Say," *Washington Post*, February 2, 2008.

Further reading

- Lawrence O. Gostin, *Public Health Law: Power, Duty, Restraint*, 2nd ed., University of California Press, 2008.
- Nancy Berlinger and Jacob Moses, "The Five People You

Meet in a Pandemic—and What They Need from You Today," November 2007. Bioethics backgrounder available at www.thehastingscenter.org.

- Howard Markel et al., "Nonpharmaceutical Interventions Implemented by U.S. Cities during the 1918–1919 Influenza Pandemic," *Journal of the American Medical Association*, August 2007.
- Ross Upshur et al., "Ethics in an Epidemic: Ethical Considerations in Preparedness Planning for Pandemic Influenza," *Health Law Review*, issue no. 1, 2007.
- Institute of Medicine, *Ethical and Legal Considerations in Mitigating a Pandemic Disease Event: Workshop Summary*, June 2007, and *Modeling Community Containment for Pandemic Influenza: A Letter Report*, December 2006.
- Neil M. Ferguson et al., "Strategies for Mitigating an Influenza Pandemic," *Nature*, April 26, 2006.



See legislation appendix.



See online-only campaign appendix at www.thehastingscenter.org/briefingbook

they will obtain the resources. This will enable local communities to place voluntariness at the core of their NPI menu and clearly articulate when and how mandatory NPI would be employed. It has been abundantly clear over the past several years—

as public and private organizations have focused on preparedness for any catastrophic event—that a diverse set of stakeholders must be included in any serious pandemic preparedness planning. 🌳