

CHAPTER 4

CAN MANDATORY VACCINATION OF HEALTH CARE PROFESSIONALS DURING AN INFLUENZA PANDEMIC EVER BE JUSTIFIED?

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ABSTRACT

Objectives: To discuss whether, during an influenza pandemic, public health authorities could be ethically justified in implementing a mandatory vaccination program directed at health care professionals.

Methods: Ethical analysis is carried out by examining arguments that can be made in favor or against such a mandatory measure and by seeking a reasonably balanced position between them. Arguments under consideration are based on the duties of health professionals and public health authorities, the consequences of their actions and on other ethical principles. The importance of relevant empirical data is stressed without any attempt to review or analyze them systematically.

Results: Mandatory vaccination of some health care professionals during a serious pandemic of influenza can be justified, but only under certain limited conditions.

Conclusions: In the throes of an influenza pandemic, health care professionals (and to a variable degree, other health care workers) have an

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ethical obligation to accept influenza vaccination if it is reasonably safe and effective. The ethical responsibility of public health authorities is to limit the impact of a pandemic on the population by all reasonable means, which clearly includes the appropriate use of vaccine. Consequently, the vaccination of health care staff can be made mandatory under certain conditions. However, a critical objection to this conclusion, which upholds that a voluntary vaccination program (an ethically much less problematic intervention) is just as effective, needs to be addressed.

1. INTRODUCTION

Influenza A viruses are unique in their ability to cause not only seasonal yearly outbreaks, but also periodic global epidemics – often called pandemics. In the past century, there have been three pandemics (1918, 1957 and 1968), one of which – the infamous “Spanish flu” of 1918 – was responsible for 450,000 deaths in the US and 50–100 million worldwide (Last, 1986; Potter, 1998; EURO ELSAV, 2002; Osterholm, 2005). A pandemic will likely occur again when the virus undergoes a major change, a so-called antigenic shift, and this will make the whole population of the world, even those who acquired immunity from annual outbreaks, highly susceptible. Although unable to predict the exact time or severity of the next pandemic, most experts agree that it may occur at any time (Dowdle, 2001). The United States Centers for Disease Control and Prevention estimate that in the US, when it will occur, 40–100 million persons will become ill, 300,000–800,000 persons will be hospitalized, and 88,000–300,000 persons will die (Meltzer, Cox, & Fukuda, 2000). A more recent estimate, based on the probability that the current avian flu strain H5NI could lead to a pandemic that would mimic the one of 1918, puts the possible death toll to 1.7 million in the United States alone (Osterholm, 2005). It is to be expected that illnesses and deaths, combined with the population’s reaction to them, will cause a major disruption to social and economic life as well as to national and international infrastructures. In anticipation of and in response to a possible pandemic, many countries in the world have been developing coordinated strategies that represent major, complex, public policies that in turn will affect the life of virtually every citizen.

Unavoidably, these plans incorporate many ethical values and preferences, refer to rights and responsibilities and create expectations and obligations. Many ethical issues that emerge from pandemic plans deserve urgent attention (Kotalik, 2005; Tracy, Upshur, & Daar, 2005). This paper

will discuss only one of the many issues. Albeit a rather narrow topic, it is one which, hopefully, will provide a window into some of the moral complexities of public health interventions designed to control a pandemic and/or outbreaks of infectious diseases in general.

One of the effects of an influenza pandemic is that it will create enormous demands on health care systems and health care workers and will do so for a protracted period, perhaps 12–24 months. Not only will there be an unprecedented number of sick that require care, there will also be fewer health care workers available to take care of them because health care workers themselves – when caring for the infected – are at a higher risk of infection, illness and death than the general population.

Understandably, a major concern addressed in pandemic plans is to find ways to protect health care workers and to make them available for service. There appears to be a consensus that the most useful tool to keep people well during a pandemic is an effective vaccine – if one can be successfully developed (Ghendon, 1994). But, production of a vaccine can only start after the pandemic virus is identified. This is a slow and complex process, so that the first batches will likely be available only four to six months after the new virus is isolated. Because, in the early stages of a pandemic, the influenza vaccine will be in short supply, a regular feature of pandemic plans is a prioritization scheme. The pandemic plans of Canada (Health Canada, 2004), the US (United States Department of Health and Human Services, 2004) and the UK (Departments, 2005) all have identified health care workers as the highest priority group. There is a strong probability that, if the pandemic virus is proven to be highly lethal, everyone who will be given an opportunity to receive the new vaccine will gladly accept it. However, if the new virus is not likely to cause deaths to healthy people of middle age, or if the efficacy or safety of the vaccine is suspicious, then health care workers may not embrace the idea of a preventive vaccination. Yet, in such situations, there may be strong epidemiological and operational reasons to make it desirable for all staff members that are in patient contact to be immunized.

Health care planners need to be concerned about this type of situation because, as it stands, the acceptance of yearly vaccination against influenza among health care professionals and other health care workers has been chronically low even if vaccination is highly recommended by authorities. It was estimated, at a recent meeting of the US Advisory Committee on Immunization Practices, that only 36% of hospital workers are vaccinated each year against influenza (Fox, 2004). The vaccination rate of Canadian health care workers during the 2000–2001 influenza season was reported to be 55% (Public Health Agency of Canada, 2001). Will health care workers

respond differently during a pandemic and will they all be voluntarily vaccinated? We do not know. But, we do know that an unwillingness to accept vaccination will add to the already worrisome “ethical barriers to preparedness” (Wynia, 2003). To address this unpredictable factor, pandemic planners in United States and Canada are cautiously looking into the possibility of using a law to make such a vaccination compulsory. Typically, the United States’ guide for local- and state-wide pandemic planning poses this question: “Does State law allow for ‘mandatory’ vaccination of certain groups if vaccination of such groups is viewed by State public health officials as being ‘essential’ for public safety?” (United States Department of Health and Human Services, 2004).

The question in the title of this paper, therefore, has a practical significance for the current development of public health policies. But, it is also of theoretical interest because it can serve as an opportunity to examine the ethical acceptability of compulsory measures in unusual but very serious health situations. This issue is to be seen against the background of a larger ongoing debate that is taking place in most countries between those who promote legally mandatory vaccinations for various infectious diseases and those who insist that vaccination programs remain voluntary (Bradley, 1999; EURO ELSAV, 2002). Given that this is not a legal paper, and accepting the premise that “(t)he law relating to public health should be based on ethical values” (Gostin, 2002), I will focus on the ethical acceptability of mandatory vaccination of health care professionals. I will first examine some principal arguments suggesting that health care professionals have a moral obligation to accept vaccination and that public health authorities have an ethical obligation to assure that these people are vaccinated. I will consider if these arguments can ever be used to justify the imposing of vaccination by law and examine both the condition for such an imposition and the limits of enforcement. Then, I will discuss arguments that assert that vaccination during a pandemic must remain voluntary. Finally, I will make some general observations about these arguments, attempt to create a balanced position and provide a tentative answer to the question posed in the title of this paper.

2. ARGUMENTS IN FAVOR OF MANDATORY VACCINATION

To defend mandatory vaccination, we need to assert that both health care professionals and public health care authorities have an ethical obligation to assure that such vaccination takes place and that a mandatory approach is

the only way to assure that this obligation is fulfilled. There are several steps required toward such a conclusion.

2.1. Professionalism and the Obligation to Serve

The first argument that upholds that health care workers have a strong ethical obligation to accept influenza vaccination is grounded in the notion of professionalism, and it is simply this: at the time of a flu pandemic, health care workers have a strong moral obligation to make themselves available to serve; this obligation in turn creates an obligation to take all the necessary measures to remain fit and to avoid illness, including the acceptance of vaccination. Three points support this argument. Firstly, to be a professional means to be someone who professes. Health professionals explicitly make such an act of profession when they are accepting an academic degree or graduating, but also, implicitly, on a daily basis, in the community or organization where they accept patients. They are professing, that is, declaring their preparedness and readiness to serve the needs of others (Pellegrino & Thomasma, 1988). This duty, which every health care professional (in the strong sense of the word “professional” as advocated by Pellegrino and others) has taken on, is proportionate to the need for his or her services.

Secondly, it appears that a major flu pandemic will be a public health emergency like no other. The figures provided above indicate that, except for a major war, no other foreseeable incident would cause a comparable amount of suffering, death and social disruption. But, influenza pandemics are infrequent, surfacing about every 30 years or so. Therefore, a health care worker will likely encounter this situation only once or twice in his or her professional career. Such a rare, but extremely severe situation calls for a meticulous adherence to professional duties. The need for services will hardly ever be greater than in a pandemic situation, so, if there was ever a time to demonstrate professionalism and a willingness to put the needs of others first, then it is at the time of a pandemic. The obligation of medical professionals to tend to the sick during epidemics, in spite of the increased risks, is also argued by Clark, McCullough and Wynia elsewhere in this volume.

Thirdly, in order to be able to serve, the health care professional has an ongoing responsibility to take care of oneself by choice of lifestyle, and to adopt measures that promote one’s physical, mental and spiritual health. Vaccination during a normal influenza season was found – at least in some studies (Pachucki et al., 1989) – to reduce employee absenteeism, so, it would very likely also reduce sick time during a pandemic. Also, a meta-analysis

of numerous clinical trials indicates that influenza vaccination is moderately effective in preventing influenza in the general population (Langley & Faughnan, 2004). Hence, if vaccination is available, then the health care worker has an obligation to receive it, unless it is medically contraindicated. Another way to formulate this obligation would be to say that the obligation arises from an unwritten social contract between health professionals and society, which requires that professionals keep themselves always ready to serve.

2.2. Nonmaleficence and Obligation not to Infect Others

The second argument is based on the principle of nonmaleficence: do not cause unnecessary harm or expose patients to avoidable risks. Unvaccinated health care workers pose a risk to others and could harm the very patients they care for, thus violating this principle. If vaccination minimizes a risk to patients, then health care workers have an obligation to accept it. The “do no harm” principle is usually applied only to interventions that are carried out by health care workers, yet, it is obviously also relevant in situations where health care workers themselves can become instruments of harm. It has been suggested that everyone has a moral obligation not to transmit a communicable disease, if one can avoid it, even for such mild conditions as a common cold (Harris & Holm, 1995). If there is such an obligation, then it will have an even stronger moral claim on health care staff than on other people (Rea & Upshur, 2001). In order for this argument to be valid, it needs to be shown that front line health care professionals who are not vaccinated will very likely get infected with the virus, transfer the virus to their patients and cause illnesses or deaths of patients that would not otherwise occur. It has been difficult to obtain such evidence for the annual influenza seasonal infections, but most observers feel that such evidence is now indeed available, and that the transfer of an influenza virus from staff to patients is not just a theoretical risk. A recent report of the National Foundation for Infectious Diseases has identified this problem and has recorded a case study from a pediatric service (Fox, 2004). Nursing home outbreaks have been traced to infected staff (Coles, Balzano, & Morse, 1992). A jury in a Coroner’s Inquest in Ontario, Canada determined that staff had played a key role in an outbreak of influenza leading to deaths in a long-term care facility, and it called for mandatory vaccination (Marsh Canada Limited, 1999). There are several studies suggesting that if health care workers in long-term care facilities do get vaccinated, the overall death rate of residents in these facilities during an influenza season is reduced (Patriarca et al.,

1986; Potter et al., 1997; Carman et al., 2000). As a result, the American and Canadian advisory committees on immunization practices and the American Academy of Pediatrics recommend annual influenza vaccination for health care workers (McMillan, 2000). Researchers have also found that about a third of front line health care workers develop symptoms during an influenza season and yet three-quarters of them do not stay home from work. It appears that peer pressure in health care institutions persuades staff members to keep on working unless an illness becomes seriously incapacitating. This behavior would be commendable if it did not further increase the chances of patients getting exposed to the virus (Herwaldt, 1993). The refusal to be vaccinated would be particularly ethically troublesome during a pandemic if the vaccine were made preferentially available to health care workers but not to the general population from which patients come. Immunization against hepatitis B has been identified to be an ethical obligation of health care providers, based on a duty not to expose patients to unacceptable risks (College of Physicians and Surgeons of Ontario, 1998) and the same duty could be postulated to exist during an influenza pandemic.

To summarize, it could be argued, on the basis of this data, that health care workers who reject available vaccination during the regular annual influenza outbreaks are transgressing the important ethical principle of nonmaleficence, and that this would be the case also during a pandemic.

2.3. Patient's Vulnerability

The third argument, not entirely independent, but supportive of the previous arguments, suggests that the obligation of health care professionals to receive vaccinations during a pandemic stems from a recognition of the patients' vulnerability on one hand and professionals' accountability on the other. As such, it should be included among the ethically relevant subject matters that health care professionals are accountable to patients, employers, professions and society (Emanuel, 1996). Getting infected from a professional could represent a major burden or risk of death to a vulnerable patient, yet the burden of vaccination on a professional is very slight because the procedure is rapid and has only minimal side effects (Rea & Upshur, 2001).

2.4. Responsibility of Public Health Authorities

So far, I have addressed the obligation of health care professionals, but the fourth argument is based on the ethical obligations of public health authorities. Their role, stated most broadly, is to promote and preserve the

good health of all citizens, balancing the rights of individuals with the needs of communities (Last, 1986). Historically, the prevention and control of outbreaks of infectious diseases have been among the first tasks in the purview of public health services and still remains an important contribution to public well-being. Failing to control an epidemic, if an opportunity to do so were available, means failing an ethical obligation. The desire not to interfere with any personal liberties is not sufficient justification to avoid taking action. Hence, if epidemiological knowledge concerning an influenza pandemic provides a strong indication that the burden to the population could be reduced by vaccination of health care professionals, then it can be argued that public health service has an ethical obligation to take all reasonable measures necessary to vaccinate this group.

2.5. Legal Enforcement

If indeed there is a strong moral obligation for health care workers to accept vaccination, and if public health authorities have a moral obligation to ensure that a vaccination will be delivered as these arguments suggest, we must ask if there is any justification for passing a law that will allow making vaccination mandatory. This raises the complex issue of the relationship between ethics and law that cannot be elaborated upon here. It is also not possible to discuss the long history of compulsory vaccination practices that in North America go back more than a hundred years. It was in 1905, that the US Supreme Court examined a state-enacted, mandatory vaccination against smallpox, and held that the law was a legitimate exercise of the State's "police power" to protect the health of its citizens (Gostin, 2000; Welborn, 2005). Since that time, this power of the state has been challenged many times or occasionally reduced, yet it has never disappeared (Parmet, Goodman, & Farber, 2005). The possibility of bioterrorism and new infectious diseases further advanced this cause, and mandatory vaccination is a measure recommended to all American states in the Model State Emergency Health Powers Act (Gostin et al., 2002).

During a pandemic situation, it can be argued that public health authorities should have available to them a legal tool that can be used if it is foreseen that non-compliance with this pressing moral obligation to accept vaccination would likely cause severe or irreparable damage to society, such as deaths that could otherwise be avoided.

A support for the conclusion that legal enforcement is acceptable presupposes that influenza vaccination has a highly favorable harm/benefit ratio. Indeed, the inoculation of an individual is a very minor procedure,

with slight discomfort and only remote risks of serious side effects. Even if it were administered against a person's wishes, this does not represent a wreckage of some fundamental interests of that person for the benefit of society (Gostin, 2001). On other hand, the benefits to society (and also to the vaccinated person) could be major, especially if the virus that causes the pandemic is highly contagious and frequently kills.

Another way to examine the issue of the acceptability of legal enforcement of vaccination is to consider the status of social free-riding. This term refers to the situation when a large majority of health professionals voluntarily collaborate in an effort that is beneficial for society, but a few are trying to get a free ride, that is, not participating in order not to inconvenience themselves, yet expecting to be well regarded and receive the same benefits or privileges as the participants. Such behavior is contrary to ordinary moral intuition. It is not defensible in common morality nor by deontological systems, and is problematic even in some interpretations of act-utilitarianism (Kornegay, 2004). If refusal of vaccination is comparable to free-riding, which is morally indefensible, then legal steps to discourage such behavior seems warranted.

2.6. Objections to the above Arguments

However, a number of things could be said to weaken the above arguments favoring mandatory vaccination:

- (a) The influenza pandemic will not be a unique event and not likely that severe; therefore, no extraordinary moral duties will be generated and no extraordinary measures should be taken. Experts tend to exaggerate the risk in order to draw attention and resources to the programs in which they are involved.
- (b) Public health officials are exaggerating the efficacy of a vaccination to alter the course of a pandemic. Some critics maintain that the efficacy of the annual influenza vaccination of health care staff is at best only marginal (Nicholson, 2000; Demicheli, 2001), and vaccination during a pandemic has never been scientifically tested, mainly because in previous pandemics there was never enough vaccine available. Pandemic plans of Canada and US do not provide any indication as to what effectiveness could be achieved during a pandemic, even if a theoretical impact of vaccination was incorporated into some calculation of economic consequences of pandemic (Meltzer, Cox, & Fukudo, 2000). Under those circumstances the vaccine does not warrant any special moral or legal considerations.

- (c) A vaccine manufactured for a pandemic is not likely to be entirely safe, and therefore, each potential recipient should be allowed to make a judgment based on personal assessment of risks and benefits. Drug research is now market driven, and a declaration by any party that a new vaccine is safe cannot be trusted. “Transparency has become a substitute for trust” (Pope, 2003) and the processes of manufacturing and testing vaccines are not currently transparent. There will not be sufficient time in a pandemic situation for proper clinical trials and, as a result, priority recipients, like health care professionals, will in fact serve unwittingly as research subjects. New batches of vaccine sometimes have new side effects that cannot be anticipated, such as the oculorespiratory syndrome caused by a vaccination in 2001 (Skowronski, Bjornson, Husain, Metzger, & Scheifele, 2004). An unexpected risk of vaccination can sometimes emerge only many years later, as was the case with the virus-contaminated polio vaccines (McCarthy, 2002; Dang-Tan, Mahmud, Puntoni, & Franco, 2004). Reporting adverse events is not mandatory and these events are likely underreported and underestimated.
- (d) There will be a scarcity of vaccine during a pandemic, and not even all those who desire it will be able to receive it. Therefore, mandatory vaccination will be unnecessary.
- (e) An infected health care worker will not be a significant source of infection because during a pandemic the virus will be ubiquitous.
- (f) Those health professionals who do not wish to be vaccinated could be offered prolonged prophylactic therapy with antiviral drugs, with benefits similar to vaccination.
- (g) Health care professionals will not be infecting their patients if they use infection control procedures and if management policies do not effectively prevent health care workers from taking time off when ill (Diodati, 2002).
- (h) The notion of professionalism as used in some of the above arguments is outdated; contemporary health care professionals do not have more obligations than workers in other sectors to guard their own health or avoid infecting others.

It should be noted that all of these objections except “(h)” attempt to undermine my earlier arguments by rejecting some factual assumptions about an influenza pandemic and vaccination or by interjecting some additional facts. I will return to this problem in the final section of this paper.

3. ARGUMENTS AGAINST MANDATORY VACCINATION

3.1. Principle of Autonomy

The first and the most obvious argument against mandatory vaccination is based on the principle of respect for autonomy. We can say that mandatory vaccination of health care professionals would be a blatant and large-scale transgression of the most important principle of health care ethics. It would represent a severe and unacceptable affront to the personal liberty and autonomy of a whole class of citizens. When a health care professional is facing a sharp end of a needle, he or she is a patient and deserves all the ethical considerations given to patients. Vaccination without consent would be an attempted invasion of bodily integrity and as such, completely out of line with current standards of patient care. Treating health care professionals in this way would simply be offensive. In support of this argument could be cited voluminous literature; the defense of patients' self-determination has been a prevailing concern of bioethics for at least the first two decades of the history of this discipline since the term "bioethics" was coined in 1970s (Beauchamp & Childress, 2001). While the position of this principle is perhaps less dominant, there are still strong voices suggesting that this principle is the most important one, "the first among equals" (Gillon, 2003). Even those theorists who are critical of the principle of respect for autonomy as a centerpiece of "principlism" agree that it is necessary to protect the patients' self-determination. They would likely support the prohibition of mandatory vaccination along the same ethical lines as breaking a rule like "do not deprive of freedom" (Gert, Culver, & Clouser, 1997).

3.2. Principle of Least Infringement

The second argument against mandatory vaccination is based on the principle of least infringement, which states that a public health intervention that infringes on liberty, privacy, autonomy and justice is permissible only if no other intervention, which is as effective but which infringes less on these moral claims, is possible (Childress et al., 2002). It is argued that mandatory vaccination is unacceptable because it fails to respect the principle of least infringement. There is another intervention, voluntary vaccination, which would achieve the goal of mandatory vaccination with less infringement on individual rights. The proponent of this argument will have to admit that the equivalency of mandatory and voluntary vaccination in terms of

outcome is not proven; however, it is also not proven that mandatory vaccination of professionals would achieve a higher success rate than voluntary vaccination. In the absence of such evidence, one way or another, the least infringing and least burdensome intervention must be preferred. This position can be supported by numerous studies that indicate that undue concern about efficiency, adverse effects, misinformation, barriers and disincentives to vaccination were factors that played a role in the current low rate of acceptance of influenza vaccination among health care staff. The same and other studies also reported an improvement of vaccination rates among health care workers if some of these problems were addressed (Harbath, Siegrist, Schira, Wunderli, & Pittet, 1998; Beguin, Boland, & Ninane, 1989; Girasek, 1990; Eisenfeld et al., 1994; Nichol & Hauge, 1997; Tamblyn, 1997; Carman et al., 2000; Habib, Rishpon, & Rubin, 2000). Generally, all these interventions to increase vaccination rates were a part of a research study and they were not permanent, system wide or comprehensive.

To buttress this argument, one can point to the fact that health care professionals have not yet recognized that vaccination acceptance is a matter of professional ethics. The ethical responsibilities of health care workers arising out of the availability of influenza vaccination (or other vaccinations) are not referred to by the codes of medical ethics in the US (American Medical Association, 2001) or in Canada (Canadian Medical Association, 2005). With few exceptions, the ethical relevance of vaccination has not been discussed in medical literature (Herwaldt, 1993; Rea & Upshur, 2001). As a result, health care workers do not currently have an ethical motivation to be vaccinated. If all issues that hinder the acceptance of voluntary vaccination are properly dealt with, then, the argument goes, a voluntary vaccination program will be just as effective as a mandatory one in assuring that almost all workers, at least those without medical contraindications, will be vaccinated. If this is the case, then the only ethically acceptable vaccination program is a voluntary one because it does not infringe on health care workers' personal liberty and autonomy.

3.3. Utilitarian Objections

The third argument against mandatory vaccination is based on utilitarian reasoning, and asserts that when the negative effects of compulsion are counted in, there will be no overall benefit to mandatory vaccination over voluntary vaccination. Firstly, such a forced measure would give the message that in our society, personal autonomy is really not that important; it could encourage health care workers themselves to impose unwanted

interventions on their patients. Such an approach would erode the respect for autonomy in health care in general. In addition, such forceful measures would demoralize health care workers and make them less effective caregivers. Coercive measures used on emergency physicians in Quebec and hospital nurses in Ontario were strongly resisted by the respective professions and thought to have undesirable side effects (Editorial, 2002; Pengelley & Whary, 2002). In addition, the mandatory approach would require surveillance and enforcement that would increase the cost of pandemic response measures and interfere with the provision of patient care.

3.4. Principle of Justice

The fourth argument against mandatory vaccination is based on the principle of justice. It declares that it would be unjust to single out health care professionals for mandatory vaccination if people in other groups are not treated in the same fashion. It can be argued that, for example, hairdressers and waiters are in just as much personal contact with large numbers of people who could be infected by them, and that firefighters and policemen, for example, are just as essential to the well-being of society as health care professionals. Consequently, there is not a sufficient morally significant difference between health care workers and many other categories of workers to justify treating health professionals differently.

3.5. Safety and Appropriateness

The final argument is a historical one, which states that public health services, at least in North America, have a poor record of making the right decision about the nature of threat to the population and the appropriateness of mass vaccination. In recent memory, two major national vaccination programs were launched as an emergency measure, yet eventually, these programs turned out to be unnecessary and risky. In 1976, when a new strain of influenza with pandemic capacity was detected, 46 million Americans and several million Canadians, on the urging of their governments, accepted emergency vaccination. But the vaccination campaign came to a premature halt because of the vaccine's side effects. On the final count, over 500 cases of Guillain-Barré syndrome and 32 deaths were attributed in the US to this intervention. In addition, the new virus was never detected outside of the initial isolated outbreak, so there was no pandemic (Morrison, Liston, & Abbott, 1976; Bernstein, 1981). In 2002, the US administration announced a smallpox vaccination plan to protect Americans

because of the threat of a terrorist attack. It expected to administer 450,000 doses of vaccine to health workers who would be thus prepared to care for patients infected with the virus. However, the plan ran into opposition. Its acceptance further dropped after reports of unexpected heart problems possibly associated with the vaccine, and after the threat of terrorists' attacks did not materialize. At the end of the year, the program succeeded in vaccinating only about 10% of the target population and it came to an end (Manning, 2003; Matthews, Murphy, Lopez, & Orenstein, 2003). An argument can be made that the harm and burden of these vaccination programs, which in retrospect were unnecessary, were reduced because the programs were voluntary. If these programs would have been implemented as mandatory measures, the burden would have been more severe and the moral culpability of the experts and decision-makers would be much greater. Hence, mass vaccination programs should remain voluntary.

3.6. Objections to above Arguments

A number of objections can be raised against the validity of the above arguments:

- (a) The influenza pandemic is such an extraordinarily severe threat to our society, and its control is so crucial that, if there is a single situation when public interest should prevail against all personal interest and autonomy, this is the situation.
- (b) Because "good health is a form of liberty for all peoples" (EURO ELSAV, 2002), mandatory vaccination will not be an affront to personal liberty if it significantly enhances the health of society. The autonomy of an individual is expressed foremost by a person's free decision to be a member of a particular community and by freedom to leave it. But as long as a person remains a member of a community, the social contract binds him to accept obligations requested by society together with benefits provided by that society (EURO ELSAV, 2002).
- (c) Health care professionals, indeed, are a special category of the population, with manifestly different rights and obligations than other workers in personal services. Therefore, they can be treated differently than other groups, and this includes having vaccination imposed on them, without committing an injustice.
- (d) The principle of the least infringement does not apply because mandatory and voluntary vaccination programs are not equally efficient at achieving the goal of vaccination. At least, there is no proof that a voluntary

vaccination program, even if could be made more acceptable, would ever come close to recruiting 100% of health care workers. In the absence of such proof, and given the gravity of the threat from influenza, we have to err on the side of caution and implement mandatory vaccination.

4. ADDITIONAL OBSERVATIONS

When we survey various positions on mandatory vaccination, it becomes apparent that there is a close and critical relationship between empirical data on the one hand and normative positions on the other. The following two points attempt to address this conundrum.

4.1. The Need to Reduce Uncertainty

Many of these contradictory arguments and objections can be raised only because of the uncertainty about empirical facts related to influenza, influenza pandemic and vaccination. I did not attempt to provide a comprehensive review and interpretation of existing empirical data. When I refer to empirical information in this paper, it is mainly to show how critical it is to have full and correct data in order to reach a reasoned ethical assessment. Issues of ethics and policy, of course, cannot be settled just by clarifying empirical data. However, acceptance of a certain set of empirical data is an important step that makes it possible to concentrate on discussion of values, interests, rights, duties and utility when looking for ethically appropriate public health measures. It is understood that it will be impossible to achieve complete certainty about many factors, be it the benefits and burdens of vaccination or the magnitude of future pandemics. Public policy makers have to act in spite of a residual, perhaps even major, uncertainty (Last, 1986; Dare, 1998). But assessment of the degree of the probability of various scenarios and the reduction of uncertainty as much as science permits are extremely important tasks from an ethics and public health law perspective (Gerberding, 2002).

4.2. Importance of Empirical Data

Concerning annual vaccination, it was stated “(d)espite the enormous burden from influenza, the efficacy, effectiveness and cost benefit of immunizing health care workers has been little studied” (Nicholson, 2000). Similarly, it has to be noted that the national influenza pandemic plans of Canada, the United States and the United Kingdom do not provide (or refer a reader to)

the kind of empirical data that would make it possible to assess the ethical acceptability of some of the measures that are proposed by these plans, vaccination being one of them. Particularly, these plans do not provide any estimates of staff shortages likely to be caused by influenza, of the benefits of vaccination in the reduction of absenteeism, of the benefits of diminishing an infection transfer from staff to patients, of the burdens and risks of vaccination and so on. Yet, any proposed public health intervention needs to have a significant probability of benefits and a strong likelihood of a positive risk/benefit ratio in order to be ethically acceptable. This will be true for measures that will be offered to the population for voluntary participation; for compulsory measures, the standard has to be even higher.

5. CONCLUSIONS

With these reservations, how can we reply to the question in the title of this paper? It seems that the arguments in favor of mandatory vaccination do not trump the arguments that are against mandatory vaccination, and vice versa. In such a situation, each of us is likely to make a personal choice based on our deepest values. Those who favor an individualistic interpretation of autonomy and strongly believe in the dominant role of self-determination as a moral foundation of a free society will likely oppose mandatory measures. My personal preference is a society “which not only promotes individual rights but accepts collective responsibility to live a collaborative life which promotes autonomy” (Doucet & Melchin, 1995), and if necessary, I am prepared to prescribe the collaboration in communal interest (Tauber, 2002). Hence, I suggest that on balance, the arguments presented in favor of mandatory vaccination are more convincing than those against the mandatory approach, providing certain assumptions about pandemic and vaccination are indeed correct. Of all the objections against this position, I believe the weightiest one is the assertion that if a voluntary vaccination program for health care workers were fully implemented, it would be just as effective as a mandatory program, without the drawbacks of compulsion and enforcement.

Is it possible then, to arrive at an objective position on the question of mandatory vaccination that could lead to the formation of a legitimate public policy? I think so. This can be achieved by constructing a position that respects all reasonable arguments and gives each of them some role in defining the limits or conditions of the mandatory measure.

One way by which this could be achieved is to suggest that, in the event of an influenza pandemic, mandatory vaccination of health care workers is ethically justified only if and when all of the following conditions are met with a reasonable degree of probability:

- (a) The pandemic appears to be so serious that staff absences due to illness would compromise care and increase morbidity.
- (b) The pandemic influenza vaccine is effective in terms of preventing clinical illness and reducing absences from the workplace.
- (c) The pandemic influenza vaccine is safe, with the understanding that the urgency of the situation permits only a limited amount of time for testing.
- (d) The mandatory vaccination program is proven to produce a significantly higher participation rate than a voluntary program, and this difference is important in meeting essential objectives of the vaccination program.

The justification of the mandatory program will be further strengthened if,

- (e) Under conditions of pandemic, unvaccinated health care workers will represent a significant risk to their patients.

In addition, the justification of a mandatory vaccination would have to be presented in a manner that allows for scrutiny of the population affected by the measure, and steps would have to be taken to apply the mandatory vaccination in a consistent way (Childress et al., 2002). The meaning of the term “reasonable degree of probability” in this context would have to refer not only to the opinion of experts but to the views of the population.

The above proposal does not claim to be the only possible way of striking the right balance. There are probably other ways by which the conditions for mandatory vaccination could be set that would take into consideration the objections without allowing the objections to defeat the purpose of mandatory vaccination.

Finally, I would like to comment on the practical implication of the above appraisal of arguments. Given the difficulties to ethically defend and to sensibly implement mandatory vaccination, it would be best if mandatory vaccination could be avoided and its goals achieved by voluntary participation. An important step in this direction is to initiate, among health care professionals, thorough discussions about an influenza pandemic in general and about the ethical aspects of vaccination as well as other personal measures that could minimize the impact of the pandemic. Hopefully, if we have enough time before the pandemic arrives, this effort can lead to the development of such a high level of moral commitment of health professionals to the response measures that mandatory vaccination will be found unnecessary.

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