

Chapter 3

Pandemic Influenza: A Comparative Ethical Approach



Abstract Community-networks such as families and schools may foster and propagate some types of public health disasters. For such disasters, a communitarian-oriented ethical lens offers useful perspectives into the underlying relational nexus that favors the spread of infection. This chapter compares two traditional bioethical lenses—the communitarian and care ethics framework—*vis-à-vis* their capacities to engage the moral quandaries elicited by pandemic influenza. It argues that these quandaries preclude the analytical lens of ethical prisms that are individual-oriented but warrant a people-oriented approach. Adopting this dual approach offers both a contrastive and a complementary way of rethinking the underlying socioethical tensions elicited by pandemic influenza in particular and other public health disasters generally.

3.1 Introduction

Contemporary healthcare constitutes an instinctual and institutional response to the multifaceted cycles of health, illness, and disease.¹ Hence, the problems of diseases including infectious ones affect all and sundry irrespective of current “sick status”. Pandemic influenza is one such incident that afflicts all sectors of the society.² It also raises questions and issues related to utility and equity, ensuring the protection of vulnerable individuals and groups in society, the need to exercise public health powers with respect for human rights³ as well as the just allocation of human and material resources.⁴ Attending to these issues, however, juggles many kinds of

¹Michael O.S. Afolabi, “Exploring the Technologies of Laboratory Science for Social Change: An Examination of the Nigerian Healthcare System” (paper presented at the 7th Globelics International Conference, Dakar, Senegal, 2009). Pp. 1–2.

²Jaro Kotalik, “Preparing for an Influenza Pandemic: Ethical Issues,” *Bioethics* 19, no. 4 (2005). P. 422.

³Belinda Bennett and Terry Carney, “Pandemics,” in *Encyclopedia of Global Bioethics*, ed. Henk ten Have (Dordrecht: Springer Science, 2015). P. 1.

⁴Kotalik. P. 422.

personal, social, political, and professional interests against one another; thus, reflecting the traditional public health dilemma of fine-tuning individual against collective good.⁵ Since the restrictive approach of individualism-driven moral lenses⁶ is unsuitable for people-centered quandaries, it seems pertinent to employ a people-centric moral lens to engage them. In this vein, the ethical prism of communitarianism and ethics of care seem apt. By examining and contrasting the core fabric of the communitarian and care ethics frameworks *vis-à-vis* the attendant dilemmas of pandemic influenza; this chapter attempts to tease out a broader ethical path towards engaging the challenges of pandemic influenza.

To properly set the conceptual foreground essential to articulating the ethical features of pandemic influenza, however, it is important to elaborate the associated biological, social, and global dynamics. These parameters, as MacPhail recently argues, are exigent in the explication and engagement of pandemic or infectious disease outbreaks.⁷

3.1.1 *Biological Features of Pandemic Influenza Outbreaks*

There have been some speculations as to the origins of the influenza virus. It has been hypothesized that the virus originated from wild waterfowls and has only slowly evolved through multiple animal species including humans.⁸ But what is known about the disease caused by the virus—influenza—is that it is a febrile illness of the upper and lower respiratory tract, characterized by a sudden onset of fever, cough, myalgia, and malaise. Pneumonia is a principal serious complication⁹ and local symptoms include sniffles, nasal discharge, dry cough, and sore throat.¹⁰ Pandemic influenza outbreaks describe the rapid spread of influenza infection. Whereas there is some conceptual controversy about the description and definition of pandemics,¹¹ they generally refer to the dissemination of new infective diseases to which immunity has not been developed in a widespread manner across a

⁵ Stephen Holland, *Public Health Ethics*, 2nd ed. (Polity Press, 2015). Pp. 1–4.

⁶ Stephen Peckham and Alison Hann, “Conclusion: Taking Forward the Debate,” in *Public Health Ethics and Practice*, ed. Stephen Peckham and Alison Hann (Policy Press, 2010). Pp. 215–216.

⁷ Theresa MacPhail, *The Viral Network: A Pathography of the H1N1 Influenza Pandemic* (Cornell University Press, 2014). Pp. 7, 21.

⁸ Sonia Shah, *Pandemic: Tracking Contagions, from Cholera to Ebola and Beyond* (New York: Sarah Crichton Books, 2016). Pp. 87–88.

⁹ Robert B. Couch, “Orthomyxoviruses,” in *Medical Microbiology. 4th Edition*, ed. Samuel Baron (Galveston: University of Texas Medical Branch at Galveston, 1996).

¹⁰ Tom Jefferson et al., “Neuraminidase Inhibitors for Preventing and Treating Influenza in Adults and Children,” *The Cochrane Database of Systematic Reviews*, no. 4 (2014). P. 4.

¹¹ Peter Doshi, “The Elusive Definition of Pandemic Influenza,” *Bulletin of the World Health Organization* 89, no. 7 (2011). Pp. 532–533.

significant part of the world.¹² They could break out in nations with a large geographical size (such as China, India, and the United States) or when the number of affected nations are many.

The pandemic nature of influenza is historically underscored by the 1918–1919 incident that killed an estimated 20 million to 50 million people.¹³ Pandemic influenza is generally characterized by an alteration in the viral subtype (due to antigenic shift), higher mortality rates among younger groups, several waves of the particular pandemic, increased capacity of spread, and geographic variation in the impact of the outbreak.¹⁴ Specifically, influenza pandemics occur when an influenza virus mutates or when multiple strains combine, or re-assort to produce strains to which there is no current immunity.¹⁵ Novel outbreaks of the influenza virus occur either in large nations or across selected nations in close proximity. Contemporary society experiences an increased development of new serotypes of several kinds of respiratory viruses because of the evolutionary potential afforded by the human population explosion and the great global increase in human mobility.¹⁶ In a manner of speaking, it seems that PHDs such as pandemic influenza outbreaks have evolved to become recurring features of the human experience. Some insights into the biological features and processes that create pandemic outbreaks support this idea.

Influenza viruses belong to the *Orthomyxoviruses* family. This comprises seven genera including influenza virus A, B, C, and D.¹⁷ Although both the genus *influenzavirus* A and B affect humans and cause pandemics,¹⁸ influenza A has been the principal culprit in known outbreaks to the extent that four major pandemics have resulted from it (1918–1919, 1957, 1968, and 2009).¹⁹ However, genetic reassortment and exchange of influenza viruses between humans and animals generate antigenic shift, which periodically introduces new viruses to the human population. This, in addition to mutation and selection, produces antigenic drift that accounts for the year-to-year variations in influenza A subtypes.²⁰ Wild ducks, for instance, serve as the primary host for various influenza type A viruses that occasionally spread to other host species and cause outbreaks in such animals as fowl,

¹² Bennett and Carney. P. 2.

¹³ Lawrence O Gostin, “Medical Countermeasures for Pandemic Influenza: Ethics and the Law,” *Journal of American Medical Association* 295, no. 5 (2006). P. 554.

¹⁴ Mark A Miller et al., “The Signature Features of Influenza Pandemics—Implications for Policy,” *New England Journal of Medicine* 360, no. 25 (2009). P. 2595.

¹⁵ HHS, “2009 H1N1 Influenza Improvement Plan,” (Washington DC: U.S. Department of Health and Human Services, 2012). P. 1.

¹⁶ Frank Fenner, “Epidemiology and Evolution,” in *Medical Microbiology, 4th Edition*, ed. Samuel Baron (Galveston: University of Texas Medical Branch at Galveston, 1996).

¹⁷ Robert B. Couch, “Orthomyxoviruses,” *ibid.*

¹⁸ Ademola H Fagbami, *Medical Virology* (Ibadan: Nihinco Prints, 2009). Pp. 67–68, 71.

¹⁹ MacPhail. P. 9.

²⁰ Fenner.

swine, and horses. Such outbreaks often lead to new human pandemics²¹ due to novel viruses infecting immunologically naïve people.²² A critical aspect of the emergence of novel virus strains is genetic variation and combination that occur at the hemagglutinin (HA) antigens (of which there are 16) and neuraminidase (NA) enzymes (of which there are nine)²³ between and amongst human and animal influenza viruses.

The subtypes of the HA and NA surface proteins forms the basis for the classification of outbreaks.²⁴ For example, the 1918 through 1919 virus was H1N1, the 1957 through 1963 virus was H2N2, the 1968 through 1970 outbreak was caused by H3N2,²⁵ the 1996 virus was H5N1,²⁶ and the 2009 outbreak was caused by H1N1;²⁷ while the most recent virus seen in Eastern China in 2013 was H7N9.²⁸ All of these traditional and new influenza viruses cause pandemics of differing proportions but more are projected to occur.²⁹ This projection is well supported by the scientific community. However, it is not known when any will occur or whether it will be caused by the H5N1 avian-derived influenza virus, newer subtypes like H7N9, or completely novel subtypes. Virologists like Webster and Govorkova argue that given the number of cases of H5N1 influenza that have occurred in humans (more than 251) with a mortality or death rate of more than 50%, it would be prudent to develop robust plans for dealing with such pandemic influenza and its (expected) new variations.³⁰ Such plans, however, necessarily demand attention to the associated ethical dynamics. Regardless of the specific subtype of human or animal-derived influenza outbreaks, the public health challenges and the moral quandaries are essentially the same.

A critical biological feature of influenza lies in its mode and pattern of transmission. This revolves around its capacity to evolve and become airborne-transmissible between and amongst human beings.³¹ The influenza virus transmits from person to person primarily in droplets released by sneezing and coughing. Some of the inhaled virus lands in the lower respiratory tract, the primary site of disease

²¹ Marion Russier et al., “Molecular Requirements for a Pandemic Influenza Virus: An Acid-Stable Hemagglutinin Protein,” *Proceedings of the National Academy of Sciences* 113, no. 6 (2016). Pp. 1636–1639.

²² Anna V Cauldwell et al., “Viral Determinants of Influenza a Virus Host Range,” *Journal of General Virology* 95, no. 6 (2014). Pp. 1193–1195.

²³ Couch. P.; Shah. P. 94.

²⁴ Cauldwell et al. P. 1193.

²⁵ Miller et al. Pp. 2595–2597.

²⁶ Shah. P. 89.

²⁷ Rebekah H Borse et al., “Effects of Vaccine Program against Pandemic Influenza a (H1n1) Virus, United States, 2009–2010,” *Emerging Infectious Diseases* 19, no. 3 (2013). Pp. 439–441.

²⁸ Cauldwell et al. P. 1204.

²⁹ MacPhail. P. 9.

³⁰ Robert G Webster and Elena A Govorkova, “H5n1 Influenza—Continuing Evolution and Spread,” *New England Journal of Medicine* 355, no. 21 (2006). Pp. 2174–2175.

³¹ Russier et al. Pp. 1636–1637.

being the tracheobronchial tree, and sometimes the nasopharynx.³² Largely because breathing is an essential biological need of human beings and partly because human-human associations are an inevitable part of reality, this biological feature of influenza viruses makes everyone vulnerable and susceptible to infection. Specifically, crowds of people facilitate viral transmission by enabling sharp upticks in the rate of transmission. The virus also circulates for longer periods in infected persons.³³

The biological features of influenza and its mode of transmission elicit some observations. One, pandemic influenza is not a single disease for which a single and specific therapeutic intervention that will be effective all the time can be developed. In other words, while there is a general approach to engaging this public health disaster, specific interventions will usually vary by each outbreak. This gives an existential and evolutionary advantage to the influenza virus over human communities. It also engenders a disaster dynamic in the sense that every outbreak becomes “sudden” and potentially associated with large human casualties.

Secondly, it shows the common vulnerability to which the local and global human community are subject *vis-à-vis* the ease of spread of the viral infection. Thirdly, the biological features of pandemic influenza demonstrate how a collective response (human material, scientific etc.) is key to engaging its social and other attendant consequences. The importance of this last remark will become clearer against the backdrop of the social and global features of pandemic influenza outbreaks, a theme addressed in the next section of this chapter.

3.1.2 Social and Global Features of Pandemic Influenza Outbreaks

An influenza pandemic has the potential to cause more deaths and illnesses than any other public health threat.³⁴ Influenza pandemics are characterized by a widely varying number of deaths,³⁵ and each outbreak has always underscored this notion. Seasonal influenza, for instance, kills up to half a million people every year. The 1918 pandemic, on the other hand, caused at least 40 million global deaths.³⁶ For the period up to August 2010, 18,500 deaths associated with laboratory-confirmed 2009

³² Couch.

³³ Shah. Pp. 85–86.

³⁴ HHS, “Hhs Pandemic Influenza Plan,” (Washington DC: U.S. Department of Health and Human Services 2005). P. B4.

³⁵ Eric J Kasowski, Rebecca J Garten, and Carolyn B Bridges, “Influenza Pandemic Epidemiologic and Virologic Diversity: Reminding Ourselves of the Possibilities,” *Clinical Infectious Diseases* 52, no. suppl 1 (2011). Pp. 44–46.

³⁶ Shah. Pp. 90, 96.

pandemic influenza A H1N1 were reported.³⁷ Also, the H5N1 outbreak recorded a death rate of 59%,³⁸ and the recent H7N9 outbreak caused 251 human infections and 67 deaths.³⁹

In the United States, the estimated potential threat of pandemic influenza is 1.9 million deaths, 90 million sick people, and nearly 10 million hospitalizations, with almost 1.5 million requiring intensive-care units.⁴⁰ Global estimates are higher. For instance, the 1918 “Spanish flu” caused an estimated 20–50 million global deaths.⁴¹ It has been projected that a recurrence of the 1918 influenza strain would probably result in the death of 51–81 million individuals.⁴² These data show that substantial numbers of deaths are an inevitable consequence and feature of pandemic influenza. However, death itself often brings about certain social consequence including the death of some of the most gifted members of the society. Sir William Osler, one of the pioneers of scientific medicine, died of complications arising from influenza in 1919. Influenza was cited by the German war general, Erich von Ludendorff, as a significant reason for why the initial gains of their last offensive faltered and ultimately failed during World War I.⁴³

From a biological perspective, influenza exploits naïve immune systems which tend to over-respond to the influenza virus. As such, young and promising adults constitute a large part of vulnerable victims. In this regard, potential contributions to societies are nipped in the bud, young widows and widowers emerge as well as a lot of orphans. For instance, 21,000 children were orphaned due to the 1918 outbreak in New York City.⁴⁴ Influenza also spread within households soon before or after the onset of symptoms in primary infected patients.⁴⁵ Hence, it is little surprising that businesses become crippled, distribution of essential goods and services disrupted and halted during outbreaks.⁴⁶

³⁷Fatimah S Dawood et al., “Estimated Global Mortality Associated with the First 12 Months of 2009 Pandemic Influenza a H1n1 Virus Circulation: A Modelling Study,” *The Lancet: Infectious Diseases* 12, no. 9 (2012). Pp. 687–689.

³⁸Shah. P. 89.

³⁹Cauldwell et al. P. 1204.

⁴⁰Ezekiel J Emanuel and Alan Wertheimer, “Who Should Get Influenza Vaccine When Not All Can?,” *Science* 312, no. 5775 (2006). P. 854.

⁴¹Tokiko Watanabe and Yoshihiro Kawaoka, “Pathogenesis of the 1918 Pandemic Influenza Virus,” *PLoS Pathogens* 7, no. 1 (2011). P. e1001218.

⁴²Christopher JL Murray et al., “Estimation of Potential Global Pandemic Influenza Mortality on the Basis of Vital Registry Data from the 1918–20 Pandemic: A Quantitative Analysis,” *The Lancet* 368, no. 9554 (2007). P. 2215.

⁴³John M Barry, *The Great Influenza: The Story of the Deadliest Pandemic in History* (Penguin, 2005). Pp. 299–300, 171.

⁴⁴Dorothy E Vawter, Karen G Gervais, and J Eline Garrett, “Allocating Pandemic Influenza Vaccines in Minnesota: Recommendations of the Pandemic Influenza Ethics Work Group,” *Vaccine* 25, no. 35 (2007). P. 6522.

⁴⁵Simon Cauchemez et al., “Household Transmission of 2009 Pandemic Influenza a (H1n1) Virus in the United States,” *New England Journal of Medicine* 361 (2009). P. 2619.

⁴⁶Alfred W Crosby, *America’s Forgotten Pandemic: The Influenza of 1918* (Cambridge University Press, 2003). Pp. 81–100.

Another associated social feature of pandemic influenza is the closure of schools with an attendant truncation of learning and educational opportunities, depending on the length of the outbreak. While some of these social features are local and exert localized effects, human beings as social animals with the aid of the increased means of locomotion transmit some of the local features into a global experience. The 1957 pandemic of influenza which occurred during a time of much less globalization spread to the United States within 4–5 months of its detection in China while the 1968 pandemic spread to the U.S. from Hong Kong within 2–3 months.⁴⁷ It is estimated that the burden of the next influenza pandemic will be overwhelmingly focused in the developing world.⁴⁸ However, the epidemiological notion well-known to public health experts that infectious diseases can predicate outbreaks in neighboring places and nations⁴⁹ implies that even so-called developed societies cannot be spared as long as the current interpenetration of people across the globe remains. The 2009 influenza outbreak, for instance, spread to 85 countries and caused a total of 39, 620 cases of infection.⁵⁰ In short, in a globalized world, infectious diseases travel in nodes of human, material, and animal networks.⁵¹

Data from sporadic studies suggest that influenza may be fairly prevalent in Africa, albeit sub-clinically. It may, therefore, have a considerable impact on morbidity and mortality on the continent⁵² should a combination of factors create a virus that is viable enough to cause a pandemic. This will have far-reaching consequences for the continent due to the material and human resource constraints, lack of preparedness plans as well as the very limited bio-therapeutic capacities that are currently available to produce vaccines. It may likewise create the dispersal of a virus novel to other continents that have experienced typical outbreaks.

Geographical location plays a major role in public health,⁵³ and disasters including health disasters are unique in that each affected region of the world has different social, economic, and health backgrounds.⁵⁴ As such, while there is a global spread, the nature of each local context and how it responds shapes pandemic influenza in some key ways. First, the nature of the “disseminating” nation influences how infection spreads elsewhere. For example, China’s slow reaction to the 2003 SARS outbreak as well as its limiting of access to patients and other relevant information

⁴⁷HHS, “Hhs Pandemic Influenza Plan.” P. B6.

⁴⁸Murray et al. P. 2216.

⁴⁹MacPhail. P. 89.

⁵⁰Simon Cauchemez et al., “Closure of Schools During an Influenza Pandemic,” *The Lancet: Infectious Diseases* 9, no. 8 (2009). P. 473.

⁵¹MacPhail. P. 95.

⁵²Maria Yazdanbakhsh and Peter G Kremsner, “Influenza in Africa,” *PLoS Med* 6, no. 12 (2009). P. e1000182.

⁵³James N Logue, “Disasters, the Environment, and Public Health: Improving Our Response,” *American Journal of Public Health* 86, no. 9 (1996). P. 1208

⁵⁴Eric K Noji, “Public Health Issues in Disasters,” *Critical Care Medicine* 33, no. 1 (2005). P. S29.

seemed to have deepened the global intensity of that crisis.⁵⁵ In other words, how a local public health disaster is handled shapes the local severity and how it spreads elsewhere. On the other hand, well-handled local health crises positively influence the possible impacts on contiguous nations. In this vein, Radest notes that Canada's rapid and coordinated response to the SARS outbreak significantly limited its spread and impact in the United States.⁵⁶

The above examples echo the interconnectivity of the modern world and show how a course of action in one place, however passive, may significantly influence the course of events in another for good or bad. It supports the idea that contemporary health in the twenty-first century is now inevitably and inherently global with respect to infectious diseases.⁵⁷ At the heart of these remarks, however, is the possibility of utilizing different networks of human interconnectivity to actively foster the global good. In other words, learning about how people connect and relate at different levels (individually, communally, institutionally *et cetera*) and learning about the chief actors and players in such a relationship nexus may provide a powerful tool for driving global public health agenda. Yet, integral to such a process is how responses to pandemic influenza are framed and implemented locally as well as their attendant limitations. This theme is addressed in the next section.

3.2 Responses to Pandemic Influenza Outbreaks

The human instinct for self-preservation has, at the social plane, always resulted in some institutional responses to diseases, whether rudimentary, barely adequate, or sophisticated. In the context of PHDs, responses are shaped by the nature of the specific disaster, where it is taking place, and what human, material, pecuniary and technological resources are available to deal with the given emergency situation. For instance, the United States prioritizes building a system that ensures stable and economically viable vaccines to engage influenza outbreaks.⁵⁸ Countries that lack the same kind of resource will clearly prioritize other approaches. However, the general approaches to pandemic influenza are therapeutic and non-therapeutic in nature. This section briefly examines them.

⁵⁵MacPhail. P. 91.

⁵⁶Howard B Radest, *Bioethics: Catastrophic Events in a Time of Terror* (Lexington Books, 2009). P. 86.

⁵⁷Alison K Thompson et al., "'With Human Health It's a Global Thing': Canadian Perspectives on Ethics in the Global Governance of an Influenza Pandemic," *Journal of Bioethical Inquiry* 12, no. 1 (2015). P. 115.

⁵⁸Gostin. P. 554.

3.2.1 *Therapeutic Responses*

Pandemic influenza outbreaks, like most diseases, have elicited some biopharmaceutical responses geared towards mitigating its disastrous effects. Due to the changing biological and social dynamics associated with the outbreak, social as well as scientific responses are always evolving to keep up. Nevertheless, the therapeutic measures fashioned to combat pandemic influenza fall into two groups. These are preventive measures involving the use of anti-viral drugs as well as vaccination.

In the past, drugs like rimantadine and amantadine were used as prophylaxis against influenza A.⁵⁹ But drug resistance has increasingly been observed to these M2-ion channel-blocking agents.⁶⁰ Today, drugs of choice are mainly Tamiflu (oseltamivir) and Relenza (zanamivir). Black et al. noted that early anti-viral intervention during the 2009 pandemic helped reduce the doubling time in the early stages of the outbreak.⁶¹ The linkage between antiviral use and reduction in clinical severity and influenza infectiousness is generally supported in the extant literature.⁶² Hence, treatment of clinical cases with anti-viral agents constitutes the first-line of engagement for pandemic influenza and these drugs are employed to control or contain pandemic outbreaks long enough for vaccines to be made.⁶³

Yet, drugs like oseltamivir and zanamivir, usually neuraminidase inhibitors, can only help reduce transmission if given within a day of the onset of symptoms.⁶⁴ On the contrary, delay in symptoms diagnosis, as well as intervention, favors infection dissemination. Nevertheless, antiviral agents for influenza offer some protection to families and households once infection has been detected. In clinical trials, antiviral treatments have been shown to be efficacious in preventing infection, hence, slowing down transmission as well as limiting the severity of the disease.⁶⁵ But the effectiveness of neuraminidase such as oral oseltamivir and inhaled zanamivir at reducing mortality is uncertain.⁶⁶ In addition, there is some evidence of side-effects. For instance, in adults as in children, oseltamivir increases the risk of nausea and vomiting. Also,

⁵⁹Raphael Dolin et al., "A Controlled Trial of Amantadine and Rimantadine in the Prophylaxis of Influenza a Infection," *New England Journal of Medicine* 307, no. 10 (1982). Pp. 580–582.

⁶⁰Jianfang Zhou et al., "Biological Features of Novel Avian Influenza a (H7n9) Virus," *Nature* 499, no. 7459 (2013). P. 502.

⁶¹Andrew J Black et al., "Epidemiological Consequences of Household-Based Antiviral Prophylaxis for Pandemic Influenza," *Journal of The Royal Society Interface* 10, no. 81 (2013). P. 7.

⁶²Neil M Ferguson et al., "Strategies for Mitigating an Influenza Pandemic," *Nature* 442 (2006). P. 449.

⁶³Black et al. P. 1.

⁶⁴Ferguson et al. P. 448.

⁶⁵Black et al. P. 1.

⁶⁶Stella G Muthuri et al., "Effectiveness of Neuraminidase Inhibitors in Reducing Mortality in Patients Admitted to Hospital with Influenza a H1n1pdm09 Virus Infection: A Meta-Analysis of Individual Participant Data," *The Lancet: Respiratory Medicine* 2, no. 5 (2014). Pp. 395–401.

treatment trials with oseltamivir or zanamivir do not settle the question of whether the complications of influenza (such as pneumonia) are reduced.⁶⁷ Resistance to these anti-viral drugs has also been reported, even in people who have never been previously treated with them.⁶⁸ Ultimately, the success of antiviral prophylaxis critically depends on the identification of index cases in households, pre-schools, schools, and other institutional settings.⁶⁹ This clearly highlights the importance of personal, social, and institutional cooperation in relation to dealing with the associated challenges.

On the other hand, vaccination as one of the most effective and cost-saving strategies for ameliorating infectious diseases⁷⁰ offers a protective approach to limiting and/or curtailing the social and economic consequences of pandemic influenza. Two types of vaccines are generally used. Trivalent inactivated vaccine and live attenuated influenza virus vaccine, both of which contain the predicted antigenic variants of influenza A(H3N2), A(H1N1), and B viruses.⁷¹ Borse et al. estimated that 2009 vaccination program against influenza prevented 700,000–1,500,000 clinical cases, 4000–10,000 hospitalizations, and 200–500 deaths. They also reported that the national health effects of vaccination were greatly influenced by the timing of vaccine administration and the effectiveness of the vaccine.⁷² Similarly, Ferguson *et al.* estimated that during a global outbreak, vaccination at the rate of 1% of the population per day would need to begin within 2 months of the initial outbreak. But this is not feasible under current vaccine technologies.⁷³ This pragmatic challenge would, however, create a biological and social climate in which infection may flourish in a logarithmic manner.

The recurring antigenic variation in influenza viruses which leads to the frequent emergence of new infectious strains⁷⁴ increases the likelihood of continuous outbreaks. This and the capacity of the influenza virus to acquire amino acid changes in its viral proteins⁷⁵ implies that each outbreak will demand novel vaccines. This often delays the possible response time, again creating a window where infection can readily spread, locally and globally. For instance, it will take at least 4 months from identification of a candidate vaccine strain until production of the very first

⁶⁷ Jefferson et al. Pp. 3–4.

⁶⁸ Mélanie Samson et al., “Influenza Virus Resistance to Neuraminidase Inhibitors,” *Antiviral Research* 98, no. 2 (2013). Pp. 178–180.

⁶⁹ Ira M Longini et al., “Containing Pandemic Influenza with Antiviral Agents,” *American Journal of Epidemiology* 159, no. 7 (2004). Pp. 630–631.

⁷⁰ Michael O.S. Afolabi and Ikeolu O. Afolabi, “Vaccine-Preventable Diseases: An Examination of Measles and Polio in Nigeria,” *The IAFOR Journal of the Social Sciences* 1, no. 1 (2013). Pp. 33–34.

⁷¹ Kristin L Nichol and John J Treanor, “Vaccines for Seasonal and Pandemic Influenza,” *Journal of Infectious Diseases* 194, no. Supplement 2 (2006). P. 112.

⁷² Borse et al. Pp. 439–441.

⁷³ Ferguson et al. P. 451.

⁷⁴ Janis Kuby, “Immunology, 1997,” (WH Freeman and Company, New York, 1997). P. 392.

⁷⁵ Watanabe and Kawaoka. P. e1001218.

vaccine⁷⁶ during an outbreak. This biological fact makes it difficult to stockpile influenza vaccines ahead of outbreaks and, by consequence, limits the preparedness efforts geared towards confronting the public health challenges and moral quandaries.

It is important to note that vaccines have some limitations. For instance, they are not entirely safe public health interventions, especially when specifics are examined.⁷⁷ This fact has increasingly come to light in relation to vaccines against pandemic influenza. Besides sore arm and redness at the injection site as well as red eyes which have been reported in earlier vaccine trials,⁷⁸ there has been some association between increased incidence of narcolepsy in children and the use of the AS03-adjuvanted vaccine for pandemic H1N1 influenza in Scandinavian countries.⁷⁹ In addition, anecdotal reports of fetal deaths occurring shortly after vaccination emerged in 2009 and raised public health concerns about vaccine safety.⁸⁰

Another shortcoming associated with vaccination generally is vaccine failure,⁸¹ which often creates a false sense of protection in recipients while allowing the continued spread of infection.⁸² In relation to pandemic influenza specifically, vaccine failure was recently reported by Manjusa et al. in people of 65 years and above as well as those who have been vaccinated against seasonal influenza.⁸³ This is quite troubling partly because vaccine failure *vis-à-vis* pandemic influenza vaccines has been little studied, and partly because there are countries like the United States where seasonal flu vaccine shots are almost the norm.

Another dimension to vaccine failure relates to the variation of influenza virus clades. Nelson et al. recently reported that Nigeria, Côte d'Ivoire, and Cameroon exhibit more variable patterns of influenza virus seasonality, hence, there is a possibility of variants evolving locally within West Africa. This, they further argue, undermines the assumption that a vaccine matched to globally dominant lineages will necessarily protect against these local lineages.⁸⁴ This notion further raises the question of whether the immune system of populations living in tropical African

⁷⁶HHS, "Hhs Pandemic Influenza Plan." P. B12.

⁷⁷Michael O.S. Afolabi, "Vaccination," in *Encyclopedia of Global Bioethics*, ed. Henk ten Have (Switzerland: Springer International Publishing, 2016). P. 2913.

⁷⁸Anthony E. Fiore, Carolyn B. Bridges, and Nancy J. Cox, "Seasonal Influenza Vaccines," in *Vaccines for Pandemic Influenza*, ed. Richard W. Compans and Walter A. Orenstein (Berlin: Springer, 2009). P. 56.

⁷⁹Yves Dauvilliers et al., "Increased Risk of Narcolepsy in Children and Adults after Pandemic H1N1 Vaccination in France," *Brain* 136, no. 8 (2013). Pp. 2486–2490.

⁸⁰Siri E Håberg et al., "Risk of Fetal Death after Pandemic Influenza Virus Infection or Vaccination," *New England Journal of Medicine* 368, no. 4 (2013). P. 333.

⁸¹Afolabi and Afolabi. Pp. 42–43.

⁸²Afolabi, "Vaccination." P. 2913.

⁸³Manjusha Gaglani et al., "Risk Factors of Influenza Vaccine Failure in 2012–13, 2013–14 and 2014–15 at Baylor Scott & White Health (Bsw) in Central Texas," *Open Forum Infectious Diseases* 3, no. 1 (2016). P. 636.

⁸⁴Martha I Nelson et al., "Multiyear Persistence of 2 Pandemic a/H1N1 Influenza Virus Lineages in West Africa," *Journal of Infectious Diseases* 210, no. 1 (2014). Pp. 121–123.

environments would react similarly to a vaccine developed mainly for populations restricted to certain geographical areas of the world.⁸⁵ On this note, in the possible event that someone originally from any of these nations were present in a pandemic influenza scenario outside African shore, the likelihood of their benefiting from vaccination seems slim.

Hence, a significant offshoot of vaccine failure in relation to pandemic influenza (especially if newer studies show more negative results) will be the reluctance of people to receive vaccines for seasonal flu and those developed for pandemic influenza outbreaks. These have unsettling public health and moral consequences. One way of engaging the limits of influenza vaccines involve creating a vaccine type that is capable of eliciting cross-protective peptides/epitopes that would be effective against different variants. But this is very difficult.⁸⁶

Besides the scientific technicalities, producing vaccines for pandemic influenza is not a cheap venture. For example, Meltzer, Cox, and Fukuda estimated in 1999 that it would cost the United States about \$166.5 billion to contain pandemic influenza.⁸⁷ Whereas the economic burden of influenza in lower- and middle-income countries involves direct costs to the health service and households and indirect costs due to a loss in human productivity,⁸⁸ these countries also have limited financial capacities to pursue pandemic influenza vaccination as a public health tool. The impacts of the ensuing disease burden from such a constraint will not be locally confined, as it will ultimately seep into the trans-national and global terrains.

In summary, the major and, perhaps, insurmountable constraint to vaccination as a tool for engaging pandemic influenza lies in the logistic challenge of producing a pandemic vaccine from scratch, conducting pre-clinical testing as well as generating billions of doses within a very short time for global distribution,⁸⁹ which may, however, not work across all nations. But considering the limitations associated with antiviral drugs as well as vaccines in relation to combating pandemic influenza, some form of non-therapeutic approach is necessary, at least as some adjunct to mitigate the overall impact of pandemic influenza on the local and global human community. The next section addresses this theme.

⁸⁵Yazdanbakhsh and Kremsner. P. e1000182.

⁸⁶Nichol and Treanor. P. 116.

⁸⁷Martin I Meltzer, Nancy J Cox, and Keiji Fukuda, "The Economic Impact of Pandemic Influenza in the United States: Priorities for Intervention," *Emerging Infectious Diseases* 5, no. 5 (1999). P. 664.

⁸⁸Natasha de Francisco et al., "A Systematic Review of the Social and Economic Burden of Influenza in Low-and Middle-Income Countries," *Vaccine* 33, no. 48 (2015). P. 6537.

⁸⁹Lauren J. DiMenna and Hildegund C.J. Ertl, "Pandemic Influenza Vaccines," in *Vaccines for Pandemic Influenza*, ed. Richard W. Compans and Walter A. Orenstein (Berlin: Springer, 2009). P. 292.

3.2.2 *Non-therapeutic Responses*

The non-pharmaceutical and non-therapeutic approaches to pandemic influenza revolve around measures such as case isolation, school or workplace closure, restrictions on travel,⁹⁰ quarantine as well as contact tracing. For instance, school closure is a non-pharmaceutical intervention often suggested for mitigating influenza pandemics. The logic behind this lies in the notion that children are important vectors of transmission, more infectious, and susceptible to most influenza strains than adults. It is also tied to the idea that high a contact rate in schools fosters transmission of infection. This approach, according to Cauchemez and colleagues, may bring about an estimated 40% reduction in peak attack rates. However, this reduction will be hindered if children are not adequately isolated or if the policy is not well implemented.⁹¹ Whereas school closure may only bring about a small reduction in cumulative attack rates, it can foster a substantial reduction in peak attack rates.⁹² Closure of schools may, however, increase anxiety and create a crisis, as was observed in France during the 1957 outbreak.⁹³

Closure of workplaces is another non-pharmaceutical intervention for pandemic influenza. It may be warranted by the degree of the outbreak in which businesses shut down at their own discretion, and for their own safety, as was seen during the 1918–1919 outbreak.⁹⁴ However, it may also be warranted by government policy. Either way, business closure incurs huge economic costs, pecuniary, and other consequences for the different people tied to and/or dependent on the affected businesses or their services and goods.

Different forms of quarantine measures are also used to mitigate the spread of infection during an influenza pandemic. For instance, isolation and quarantine of infected patients allow some containment of infection which consequently slows down viral transmission.⁹⁵ Ultimately, quarantine contributes towards reducing the overall costs and impact of an outbreak. Some medical experts see household quarantine as the most effective social distance measure, provided the level of compliance is good.⁹⁶ Yet, quarantine—at least on a general note—does not always work. For example, maritime quarantine was one of the measures employed in West Africa to engage the 1918 influenza outbreak as well as interning the ill. However, historians like Heaton and Falola note that these approaches yielded meager success in relation to quelling the spread and virulence of the pandemic.⁹⁷ Indeed, while other

⁹⁰Ferguson et al. P. 448.

⁹¹Cauchemez et al. Pp. 473, 478.

⁹²Ferguson et al. P. 450.

⁹³Cauchemez et al. “Closure of schools during an influenza pandemic.” P. 475.

⁹⁴Crosby. Pp. 81–100.

⁹⁵Cauchemez et al. P. 2627.

⁹⁶Ferguson et al. P. 451.

⁹⁷Matthew Heaton and Toyin Falola, “Global Explanations Versus Local Interpretations: The Historiography of the Influenza Pandemic of 1918–19 in Africa,” *History in Africa* 33 (2006). P. 207.

measures such as cancellation of non-essential public gatherings and restrictions on long-distance travel might help to decrease influenza transmission rates as well as overall morbidity, their effectiveness has not been quantified.⁹⁸

The nature of pandemic influenza, the therapeutic and non-therapeutic approaches, and the associated limitations generate some moral concerns. The next section discusses this.

3.3 Ethical Issues Embedded in Pandemic Influenza Outbreaks

Ethical issues arise during outbreaks of pandemic influenza. Some of these are directly tied to the nature of the virus, some in relation to human responses, some to the social responses, and others to how different human beings respond differently to the several challenges elicited by the pandemic. Bioethicists have underscored the critical need to reflect on the ethical issues raised by the specter of pandemic influenza outbreaks.⁹⁹ However, what may and what may not be feasible to do will never be clear enough if these ethical quandaries are not clearly explicated. Hence, this section seeks to clarify the moral quandaries elicited by pandemic influenza and show the core connecting strands that resonate amongst them.

3.3.1 *Uncertainty*

Generally, contexts of uncertainty are tied to the evolving nature of knowledge. Tannert et al. opine that uncertainty occurs because the more the human community gains insights into the mysteries of nature, the more they realize the limits of their knowledge about how things are. These limitations, they note, make it impossible to foresee all the associated future effects and implications of situations and decisions with certitude.¹⁰⁰ In relation to medicine, Jean Daly notes that the art of medicine seeks to abolish uncertainty.¹⁰¹ Regardless of the good intentions and *telos* of medicine, the stark reality is that this task has hardly been achieved. Hence, different facets of uncertainty remain in medicine generally as well as in different biomedical

⁹⁸ Julia E Aledort et al., "Non-Pharmaceutical Public Health Interventions for Pandemic Influenza: An Evaluation of the Evidence Base," *BMC Public Health* 7, no. 208 (2007). P. 6.

⁹⁹ Alison K Thompson et al., "Pandemic Influenza Preparedness: An Ethical Framework to Guide Decision-Making," *BMC Medical Ethics* 7, no. 12 (2006). P. 11.

¹⁰⁰ Christof Tannert, Horst-Dietrich Elvers, and Burkhard Jandrig, "The Ethics of Uncertainty," *EMBO Reports* 8, no. 10 (2007). P. 892.

¹⁰¹ Jeanne Daly, *Evidence-Based Medicine and the Search for a Science of Clinical Care* (University of California Press, 2005). P. 10.

contexts. James Marcum contends that uncertainty is largely a part of medicine because of the variability of the underlying biology.¹⁰²

Uncertainty is not new in the realm of science.¹⁰³ However, in the context of public health disasters uncertainty has a strong pragmatic dimension which can influence courses of actions and decisions in multiple unfavorable ways. For example, it occurs during pandemic influenza outbreaks and generates many concerns. In this vein, Borse et al. note that the public health community cannot accurately predict the arrival of a pandemic.¹⁰⁴ Indeed, a great deal of uncertainty occurs in relation to estimating the potential impact of a pandemic such as influenza.¹⁰⁵ This scenario stifles preparedness efforts, especially in resource-constrained countries where there are often competing social needs to be met with limited budgets. However, the two main uncertainty issues embedded in pandemic influenza involve the nature of the virus and the types of responses available to engage outbreaks.

On the one hand, the influenza virus undergoes constant variation in its antigens, creating new infectious strains.¹⁰⁶ The virus also acquires amino acid changes in its proteins. These scenarios increase the likelihood of pandemic outbreaks. However, the question of when, where, and of what magnitude the outbreak will be is never clear-cut. Worst-case scenario analysis based on the 1918–20 pandemic provides no insight into the probability of an influenza pandemic in the next 1, 5, or 10 years¹⁰⁷ and how serious such an outbreak might be. This scientific uncertainty or paucity of precise knowledge ignites some social uncertainty and may prompt moral inertia in relation to the level of preparedness and the ability to mitigate the various possible ramifications of an outbreak, when it does occur.

This backdrop of uncertainty creates at least three possibilities: over-preparedness, ample preparedness, and under-preparedness. Assuming the level of risks remains constant, over-preparing for a pandemic will undoubtedly involve the committing and expenditure of more human and material resources to an outbreak. This will create a sense of waste (to decision and policy makers) after the incident and may affect the resources that will be committed to future outbreaks. The right amount of preparation will help curtail an outbreak while under-preparedness will barely help curtail an outbreak. However, if the level of risk increases, over-preparing may help curtail a pandemic whereas what was hitherto ample preparedness as well as what was hitherto not enough will enable the full range of the effects of a pandemic outbreak to be felt.

¹⁰²James A Marcum, *An Introductory Philosophy of Medicine: Humanizing Modern Medicine*, vol. 99 (Springer Science & Business Media, 2008). P. 157.

¹⁰³Theresa MacPhail, "A Predictable Unpredictability: The 2009 H1N1 Pandemic and the Concept of Strategic Uncertainty within Global Public Health," *Behemoth: A Journal on Civilisation* 3, no. 3 (2010). P. 57.

¹⁰⁴Borse et al. P.443.

¹⁰⁵Martin I Meltzer, Nancy J Cox, and Keiji Fukuda, "The Economic Impact of Pandemic Influenza in the United States: Priorities for Intervention," *ibid.*5, no. 5 (1999). P. 669.

¹⁰⁶Kuby. P. 392.

¹⁰⁷Murray et al. Pp. 221–2215.

In other words, the changing nature of the virus demands a constant readjustment of the level of preparedness without a reliable frame of reference with the attendant possibility of some inevitable social harm. Not surprisingly, scholars like Peter Doshi argue that there is a need for evidence-based ways to address hypothetical scenarios of non-zero probability such as the notion that novel influenza pathogens acquire increased virulence during successive “waves” of infection.¹⁰⁸ The scientific uncertainty associated with health disasters such as pandemic influenza may, however, tempt government officials to attempt some form of a cover-up, hence, raising trust issues. For instance, during the 1911 cholera outbreak in Naples, Italian officials paid newspapers and reporters not to report the outbreak. Chinese officials tried to keep the 2003 SARS outbreak a secret. Saudi officials, likewise, tried to silence the virologist who discovered the coronavirus in 2012 and ultimately forced him to resign from his position.¹⁰⁹ Incidents like these have the tendency to dissuade social cooperation during public health emergencies like influenza and have the potential to weaken the overall success of public health interventions.

On the other hand, there is a lot of uncertainty surrounding the therapeutic and non-therapeutic approaches adopted *vis-à-vis* pandemic influenza. It is uncertain, for example, if neuraminidase antiviral drugs really cut down mortality when implemented as the first line of defense.¹¹⁰ This may create some sense of hesitation in relation to using them. Secondly, it is uncertain who and who will not develop some of the associated side-effects. These factors, at a pragmatic level and for less rich nations, may dis-incentivize prioritization of funds for antiviral drugs.

Uncertainty likewise plays out in the context of influenza vaccines. For instance, only a small amount of any vaccine can be stockpiled¹¹¹ because the scientific and public health community can hardly be sure of the efficacy of any given vaccine prior to an outbreak. This is due to possible vaccine failure which will make a new outbreak not amenable to the biological effects of hitherto effective vaccines. Hence, vaccines are generally not produced until the new virus strain causing a pandemic is isolated.¹¹²

Also, there is uncertainty over who will be at highest risk of infection and complications.¹¹³ This creates a dilemma of some sorts with the potential that a class of the people who need vaccines may not get enough, while another class of people who will benefit less from vaccination gets too much. Another kind of uncertainty is linked with possible side-effects of vaccines. While some incidence of narcolepsy was reported in children after the use of AS03-adjuvanted H1N1 influenza vaccine in Scandinavian countries,¹¹⁴ and there have been anecdotal reports of fetal deaths

¹⁰⁸ Doshi. P. 535.

¹⁰⁹ Shah. Pp. 108–111.

¹¹⁰ Muthuri et al. Pp. 395–401.

¹¹¹ HHS, “Hhs Pandemic Influenza Plan.” P. S5–6.

¹¹² Kotalik. P. 427.

¹¹³ Emanuel and Wertheimer. P. 854.

¹¹⁴ Dauvilliers et al. Pp. 2486–2490.

occurring shortly after the 2009 vaccination¹¹⁵; it is not clear if these safety issues are one-off events or may recur for other pandemic vaccines. Responding to influenza vaccine safety signals during a pandemic constitutes a scientific and public health policy issue since decision-makers must balance the immediate consequences of disease against uncertain risks.¹¹⁶

One of the consequences of the therapeutic uncertainties associated with pandemic influenza is the validity of administering potentially ineffective antiviral drugs with side-effects or vaccines that may cause harm to people. Another is the validity of withholding such drugs and vaccines because it may not be useful for some class of people, or because some people may experience certain degrees of side-effects. These issues raise concerns about human rights and whether or not they may be violated through these courses of actions, or by any other course of action associated with handling a pandemic influenza outbreak.

3.3.2 *Human Rights*

The 1948 Universal Declaration of Human Rights and the 1966 International Covenant on Economic, Social and Cultural Rights documents enunciate the rights of “everyone to the enjoyment of the highest attainable standard of physical and mental health”.¹¹⁷ Hence, it is perhaps more than ever taken for granted that there are rights-related obligations that society, as well as healthcare providers, owe patients¹¹⁸ as well as those that may potentially fall sick. Since everybody is theoretically a potential victim of ill-health depending on time, place and social or physiological circumstances, individuals can appeal to a rights-based rhetoric to garner positive action from government and healthcare professionals in relation their health. The morality of such a claim stems partly from governments’ moral obligation to their citizens and partly from the fiduciary obligations that health professionals have towards fostering the health of patients (and potential patients) in a fashion that preserves their rights as human beings.

Many moral concerns related to human rights come to the fore in the context of pandemic influenza outbreaks. The first is related to the limited number of vaccines that can be available for each outbreak (due to reasons outlined in the preceding section) and the best sharing formula to use. Whatever adopted formula in a given place or situation, some people who may benefit could be excluded. For instance,

¹¹⁵Håberg et al. P. 333.

¹¹⁶JC Maro et al., “Responding to Vaccine Safety Signals During Pandemic Influenza: A Modeling Study,” *PLoS ONE* 9, no. 12 (2014). Pp. 1–2.

¹¹⁷Tracy Slagle et al., “Lessons from Africa: Developing a Global Human Rights Framework for Tuberculosis Control and Prevention,” *BMC International Health and Human Rights* 14, no. 34 (2014). P. 2.

¹¹⁸Jonathan M Mann, “Medicine and Public Health, Ethics and Human Rights,” *Hastings Center Report* 27, no. 3 (1997). Pp. 6–9.

pandemic influenza often generates a high number of sick people over a large geographic area who will need care at the same time. While this “need” begins at the local plane, it may evolve to be regional and/or global depending on the extent and severity of an outbreak.

Hence, the human and material resources of healthcare will be rapidly depleted and overwhelmed.¹¹⁹ Since the needs of everyone cannot be met under such a scenario, there is usually some need to ration available resources. In fact, vaccines are hardly enough during pandemics, and rationing is generally considered as the ethical option.¹²⁰ Yet, the contemporary interconnection between health, the right to health and human rights¹²¹ implies that withholding vaccines from some people who might be potential victims of a pandemic outbreak may be a human rights violation. On the other hand, administering antiviral drugs to non-vaccinated at-risk people helps reduce the severity of illness.¹²²

During disaster scenarios, the goal remains saving lives but a pandemic scenario in which 25–50% of the population can fall sick within a very short time¹²³ often demands some type of prioritization of resources. This is partly because keeping some sets of people alive, especially health workers will ultimately help society keep more people alive during a public health disaster. For instance, the traditional view is that prioritizing the vaccination of front-line healthcare workers can help reduce staff absenteeism as well as help prevent them from becoming vectors of viral infection. This is often justified by the logic that a PHD situation such as pandemic influenza often makes health professionals work outside their normal scope of practice, put in extra hours, cover for ill workers, accept great risks¹²⁴ as well as incur other situational unexpected responsibilities and supererogatory duties.

Although adults aged 65 years or older, pregnant women, and people of any age with underlying medical conditions are at high risk of pandemic influenza and its associated complications, the notion that death is more tragic in children and young adults as opposed to elderly persons, perhaps, because younger persons have not had the chance to live and develop through all stages of life and accomplish their dreams has made some ethicists argue for the prioritization of vaccines to younger people.¹²⁵ Yet, if persons are inherently born with human rights and do not have to earn rights, such an idea tends to revamp the rights to health of some class of people at the expense of others. Indeed, notions such as this echo the idea that mainstream bioethical issues tend to be far-flung from the values of ordinary people and often

¹¹⁹ Kotalik. P. 424.

¹²⁰ Vawter, Gervais, and Garrett. P. 6535.

¹²¹ Lisa Forman and Stephanix Nixon, “Human Rights Discourse within Global Health Ethics,” in *An Introduction to Global Health Ethics*, ed. Andrew D Pinto and Ross E.G Upshur (London: Routledge, 2013). P. 54.

¹²² Kotalik. P. 428.

¹²³ David M Morens and Anthony S Fauci, “The 1918 Influenza Pandemic: Insights for the twenty-first Century,” *Journal of Infectious Diseases* 195, no. 7 (2007). P. 1026.

¹²⁴ Kotalik. P. 429.

¹²⁵ Emanuel and Wertheimer. P. 855.

irrelevant to the decisions they experience in their encounter with healthcare.¹²⁶ In other words, an empirical approach which takes into consideration what people would want when faced with this thorny dilemma rather than an armchair speculation ought to influence the criteria for rationing vaccines.

One of the non-therapeutic responses to pandemic influenza is the isolation and quarantine of infected patients.¹²⁷ Whereas a visibly infected and sick person may have just a little objection to quarantine (after all, such a state mirrors the ambulatory limitations that most disease states naturally impose on people), it is often problematic for other categories of people. In this vein, isolation and quarantine raise concerns about the acceptability of confining people and preventing them from engaging in some of the social activities they otherwise would have loved. Whereas restriction of movement is ethically problematic,¹²⁸ it is equally problematic to allow person A who may be infectious to roam free, thereby potentially infecting other persons who may also (without the imposition of some restriction) further spread infection.

It is clear from the foregoing that pandemic influenza challenges and raises some moral concerns regarding the rights of people,¹²⁹ preempting the need to balance them against what is the optimal good of the society. But embedded in these reservations is the demand for autonomous living, broadly conceived. Whereas this has been associated with western contexts, concerns about rights violations in relation to quarantine measures are not confined to the West. Sambala and Manderson recently commented about how Ghanaians and Malawians perceive public health interventions including quarantine as being intrusive.¹³⁰ But this perception seems to run contrary to the cultural norm of most African people. In relation to this strand of thought, Shah notes that during epidemics, the traditional attitude of the Acholi people of Uganda involves working together to isolate the sick, mark homes of the sick with long elephant grass, warn outsiders not to visit affected villages, and refraining from potentially infection-transmitting practices including sexual intercourse.¹³¹ This suggests at least two things.

One, in traditional African societies there may be some fairly general consensus about the need to adopt mutual and social cooperation for the overall benefits of the society in engaging collective threats. Secondly, it shows how the global village has increasingly penetrated and fragmented societies that were once non-individualized in orientation. But it seems that societies have been affected differently by the globalizing current of individualistic logic. For instance, Macphail remarks that

¹²⁶ Larry R Churchill, "Are We Professionals? A Critical Look at the Social Role of Bioethicists," *Daedalus* 128, no. 4 (1999). Pp. 253–257.

¹²⁷ Cauchemez et al. P. 2627.

¹²⁸ Aledort et al. P. 6.

¹²⁹ Adrienne Torda, "Ethical Issues in Pandemic Planning," *Medical Journal of Australia* 185, no. 10 (2006). P. S73.

¹³⁰ Evanson Z Sambala and Lenore Manderson, "Ethical Problems in Planning for and Responses to Pandemic Influenza in Ghana and Malawi," *Ethics & Behavior* just-accepted (2016). <https://doi.org/10.1080/10508422.2016.1274993>

¹³¹ Shah. P. 98.

whereas Europeans and Americans generally view quarantine during influenza as almost worthless, Asians such as Hong Kongers, expect it as the norm during health disasters, and demand it.¹³² This probably shows how strong an influence the communal-oriented Confucian idea still exerts in that country.

In the context of pandemic influenza outbreaks, over-emphasizing individualism and the attendant call for autonomy (even when such does not cohere with social interests) overlooks communal values and the relational nature of social interactions.¹³³ It likewise ignores the complex nature of pandemic influenza and how it plays out in an equally complex web of this global age and how people more or less are susceptible to the harms of public health disasters regardless of their proximity. It has also contributed, as Lachman argues, to a reduction in the fear of infectious diseases by increasing the emphasis on patients' rights, giving rise to a dangerous complacency that may do great damage to the goals of public health.¹³⁴ One of the ways to address the attendant dangers inherent in this almost pervasive trend is recognizing the vulnerabilities even to far-flung harm that is fast becoming an integral aspect of contemporary life.

3.3.3 *Vulnerability*

Vulnerability—in different forms and facets—plays out in pandemic influenza, as in other public health disasters. Traditionally, belonging to the human community or occupying specific facets of life constitutes sources of vulnerability. But the state of being susceptible to harm by the actions and activities of other people or by parts of nature such as viral organisms is also a potential source. In addition, the state of vulnerability may ensue from a range of social, economic, and political conditions.¹³⁵

In the context of pandemic influenza, the naturalistic, socioeconomic, epistemic, political, and biological dimensions of vulnerability arise. On the one hand, humans located in pandemic-prone cities or countries and other human beings linked to the global community by technological means of transportation (such as air travel) or non-technological ones (such as migrating birds) are generally vulnerable to influenza outbreaks. The likelihood of a novel strain of influenza outbreak occurring in a country such as China (for instance, Jiangcun in Guangzhou) where large numbers of people, birds, and swine mingle freely in certain markets is very high¹³⁶; hence, making the local population and consequently the people of such a nation more vulnerable.

¹³² MacPhail, *The Viral Network: A Pathography of the H1N1 Influenza Pandemic*. Pp. 95–95.

¹³³ Bennett and Carney. P. 7.

¹³⁴ Peter J Lachmann, “Public Health and Bioethics,” *The Journal of Medicine and Philosophy* 23, no. 3 (1998). P. 298.

¹³⁵ Henk ten Have, “Vulnerability as the Antidote to Neoliberalism in Bioethics,” *Revista Redbioética/UNESCO* 1, no. 9 (2014). P. 88.

¹³⁶ Shah. Pp. 87–94.

On the other hand, the strength of health systems reflected by availability of experts, economic and technical resources will vary the extent of pandemic-related vulnerability which different societies will experience. In addition, it is widely believed within the scientific community that influenza pandemics can hardly be halted, but they can be delayed.¹³⁷ Therefore, the “ignorance gap” that occurs during pandemic influenza outbreaks creates a context in which some of the preparatory strategies will inevitably fail (due to no fault of anyone), thereby leaving some people less protected.

In relation to the socioeconomic dynamics, it is estimated that most influenza pandemic-associated deaths occur in poor countries or in societies with scarce health resources which are already stretched by extant health priorities and challenges.¹³⁸ Farmer and Campos underscore the need for bioethics to engage the growing problem posed by the gap between rich and poor nations, and how such a course of action reflects social justice.¹³⁹ Politically, communist nations such as China present unique dimensions to the vulnerabilities of pandemic flu as they may control critical information traffic and access to patients, thereby deepening the crisis situation,¹⁴⁰ or misrepresenting it, and thereby subjecting the rest of the connected world to avoidable risks.

The biological make-up of human beings both make them vulnerable to becoming infected with influenza virus as well as make them good vectors of dissemination. For instance, the virus has a surface molecule that enables it to attach firmly to cells in the mucous membranes of the respiratory tract, preventing it from being swept out by the ciliated epithelial cells.¹⁴¹ But breathing is a normal aspect of human existence, and the oxygenation of the human blood and other oxygen-dependent biochemical processes of the human body rely on it. Yet, the combination of these factors facilitates the ready transfer and exchange of the influenza viruses amongst people, especially when they are in close proximity.¹⁴²

The foregoing shows how susceptibility and vulnerability to infection during pandemic influenza reflect a combination of factors.¹⁴³ How these combine in specific localities and regions will, therefore, determine the extent of an outbreak. It is also clear that some amount of control can be exerted on minimizing some of these factors. For instance, the use of face mask (to limit infection acquisition and spread), transparency (to combat political bottlenecks), and monetary aid (to help poor nations) will exert some preventive effects on infection transmission, hence, limiting the overall burdens and severity of an outbreak. Since everyone may not receive the same level of healthcare for various reasons during a public health disaster (depending on time, place, and category of persons such as adults, the aged, or children), questions about justice and what is just in the context of a pandemic outbreak arise.

¹³⁷ MacPhail, *The Viral Network: A Pathography of the H1N1 Influenza Pandemic*. Pp. 23–24.

¹³⁸ Murray et al. P. 2211.

¹³⁹ Paul Farmer and Nicole Gastineau Campos, “Rethinking Medical Ethics: A View from Below,” *Developing World Bioethics* 4, no. 1 (2004). P. 40.

¹⁴⁰ MacPhail, *The Viral Network: A Pathography of the H1N1 Influenza Pandemic*. Pp. 91–93.

¹⁴¹ Kuby. P. 6.

¹⁴² Shah. P.86.

¹⁴³ Cauchemez et al. P. 2625.

3.3.4 *Local and Global Justice*

Pandemic outbreaks exacerbate extant inequalities to the extent that certain groups of people face disproportionate risks and impacts of disease.¹⁴⁴ This obviously seems unfair, especially if pre-pandemic actions that would have ameliorated the situation were not done. For instance, school closure in certain districts may interrupt educational opportunities or growth of some children, and business closures will lead to financial losses. Since such restrictions may not apply to every region of the nation, these measures may seem unfair to those affected, knowing that other children continue to have access to education, and other people continue to run their businesses. If this characterizes the feelings of some of the people affected by these restrictions, then it is reasonable that some form of compensation may be required to foster optimal compliance to the public health measures that are to be implemented. Indeed, bioethicists like Michael Selgelid and Søren Holm make explicit arguments for some form of compensation to people who suffer financial and other losses due to compliance with public health directives issued during influenza outbreaks.¹⁴⁵ Although compensation may not be a problem in more affluent nations where other educational stimulus and business tax breaks may help alleviate any temporary pandemic-associated losses, poorer countries will find it hard to compensate people for any such losses.

Rationing also raises issues about justice in terms of how vaccines (if available) will be shared during an influenza pandemic. Given the limited amount of supply available globally, and locally in a developed economy like the US, distributing the limited supply will require determining priority groups.¹⁴⁶ For people not to feel a sense of being left out during local vaccine administration, it is better to have debated and developed a preparedness plan with the consensus of the local populace. Resolving vaccine distribution on a global scale will, however, involve very complex sets of factors. For instance, will countries who supply most of the technical and financial resources to develop such an influenza vaccine demand that the needs of her people be prioritized as opposed to the needs of nations that have contributed little or not at all? Even if such a question were not explicitly raised, will it be fair to distribute vaccines equally if every country or affected region has not made significantly even contributions? These are unsettling questions that are bereft of simple answers.

Some ideas stand out when all the ethical issues generated by pandemic influenza are closely examined. Four of these ideas demand attention. The first is the need to help people. Secondly, the nexus of relationship that exists between people

¹⁴⁴Henk ten Have, *Vulnerability: Challenging Bioethics* (Routledge, 2016). Pp. 70–71.

¹⁴⁵Michael J Selgelid, “Promoting Justice, Trust, Compliance, and Health: The Case for Compensation,” *The American Journal of Bioethics* 9, no. 11 (2009). Pp. 22–23; T Ly, MJ Selgelid, and I Kerridge, “Pandemic and Public Health Controls: Toward an Equitable Compensation System,” *Journal of Law and Medicine* 15, no. 2 (2007). Pp. 296–300; Søren Holm, “Should Persons Detained During Public Health Crises Receive Compensation?,” *Journal of Bioethical Inquiry* 6, no. 2 (2009). Pp. 197–201.

¹⁴⁶Emanuel and Wertheimer. P. 854.

and the influenza virus and the changing nature of what is known as well as what can be done to help people under such constraints will limit the help some people may ultimately get during an outbreak. Thirdly, the threat of an outbreak presents different risks which vary by context, time, and place. Lastly, regardless of the different situational dynamics that pandemic influenza presents locally, regionally, and globally; its threat will affect everyone to varying degrees. Since nations theoretically care about their people, it is only reasonable that a people-centered approach offers a useful way to engage the moral quandaries elicited by pandemic influenza outbreaks.

3.4 A People-Centric Approach to Pandemic Influenza Outbreaks

The subject matter of diseases is human populations.¹⁴⁷ In fact, the preoccupation of medicine remains the amelioration of the distress of people technically referred to as patients. If a people-centric approach constitutes a viable way of engaging the ethical issues embedded in pandemic influenza scenarios, one way to glean a sufficiently nuanced angle on such an approach will involve turning to ethical lenses that are, in principle, people-oriented. Two principal examples of such ethical prisms are communitarianism and ethics of care. This section briefly explains each of these moral lenses, and how each may help engage the ethical issues generated by pandemic influenza.

3.4.1 *Communitarianism: Conceptual Elaboration*

The communitarian moral lens adopts a people or community-centric perspective to moral issues. Applied to public health, it offers a population-centered approach which best reflects the philosophy of public health in terms of its commitment to doing the most for the greatest number of people in a society or within a social context. Bioethicists like Stephen Holland regard the communitarian lens as useful since it aims at realizing collective interests. This same idea offers a strong justificatory argument for adopting it in relation to public health interventions.¹⁴⁸

Communitarianism pays attention to the social sphere, institutions, and interrelationships in relation to moral judgments that will inform public health policy and practice. Its ethos provides an alternative to the dominant atomistic lens of individualism which operates via the logic of self-protection¹⁴⁹ and the unbridled

¹⁴⁷ MacPhail, *The Viral Network: A Pathography of the H1N1 Influenza Pandemic*. P. 196.

¹⁴⁸ Stephen Holland, *Public Health Ethics* (Polity Press, 2007). Pp. 51–55.

¹⁴⁹ Michael Yudell, “Public Health Ethics: An Update on an Emerging Field,” in *The Penn Center Guide to Bioethics*, ed. V. Ravitsk, A. Fiester, and Arthur L. Caplan (New York: Springer, 2009). P. 563.

pursuance of self-interests. It holds that the social nature of life and institutional and social relationships should inform moral thinking, and by implication, the process of determining appropriate courses of actions should lie within the social space.¹⁵⁰ To be sure, the communitarian notion appeals to the historical traditions of communities or people who share customs, ideals, and values¹⁵¹; and thus prioritizes common threads of thought and practices within specific communities as a strong moral basis for justifying decisions that pit different individual and social interests against one another.

There is an important phenomenological aspect of communitarianism. For people raised within the traditional family structure—father, mother, children, and relatives—the family unit constitutes a micro-community which generally socializes the child into a community-oriented way of reasoning. While the strength of such an orientation is expressed in different measures by different individuals, it also provides the cognitive platform for balancing and pursuing personal interests in a feedback loop with the collective interests of other family members. Yet, the ultimate measure of what level of community-oriented reasoning an individual retains in adult life will depend on their education, social experiences, whatever meanings they draw from these, and how these parameters are brought to bear in the context of specific decisions and choices. This reality partly explains the multiple versions and interpretations of communitarianism, which tends to mar its conceptual and theoretical coherence.¹⁵² It also partly explains why community values are not generally shared by all.¹⁵³

Communitarians advance three different types of claims: *descriptive* claims which stress the social nature of people; *normative* claims which celebrate the value of community and solidarity, and a *meta-ethical* claim which emphasizes the idea that political principles should mirror “shared understandings”.¹⁵⁴ Two of these dynamics—the normative as well as the metaethical—are important in relation to engaging the ethical issues elicited by pandemic influenza. The significance of the meta-ethical dimension of communitarianism is its capacity to help drive and ground public health policies. This is especially so considering the reality that community and living together in today’s fragmented and individualistic world is generally seen ever less as a necessity and assumes the dimensions of a choice as the default state.¹⁵⁵ Hence, these two facets will be examined in relation to their possible

¹⁵⁰ Holland, *Public Health Ethics*. Pp. 42–43.

¹⁵¹ Ronald Bayer et al., *Public Health Ethics: Theory, Policy and Practice* (Oxford: Oxford University Press, 2007). Pp. 18–19.

¹⁵² Holland, *Public Health Ethics*. Pp. 44–50.

¹⁵³ Will Kymlicka, “Liberalism and Communitarianism,” *Canadian Journal of Philosophy* 18, no. 2 (1988). P. 200.

¹⁵⁴ Simon Caney, “Liberalism and Communitarianism: A Misconceived Debate,” *Political Studies* 40, no. 2 (1992). Pp. 273–274.

¹⁵⁵ Alberto Pini, “Rethinking Community in the Aftermath of Communitarianism: Outlines of a Phenomenological Path,” *Ethic: an International Journal for Moral Philosophy* 12, no. 1 (2013). P. 12.

insights and pragmatic importance *vis-à-vis* engaging the quandaries associated with influenza outbreaks.

3.4.1.1 Communitarianism *vis-à-vis* the Quandaries of Pandemic Influenza

Healthcare focuses on helping sick people regain optimal health and healthy people maintain good health. Pellegrino and Thomasma remark that medicine seeks to foster social flourishing as well as the medical good of society.¹⁵⁶ If this is true, and if the end of the communitarian moral lens is to ensure the survival of the society by promoting the interests of people over the selfish interests of individuals, then how can this approach help engage issues of uncertainty, vulnerability, human rights and justice? This can come through appropriate educational policies and approaches carried out prior to and during influenza outbreaks.

It is not known when and in whom influenza therapeutic interventions such as antiviral drugs and vaccines may cause side-effects. It is also not known when an outbreak will occur or the attendant magnitude. Since public health disasters are classless in terms of who will and who may not be affected, the scenario of uncertainty affects every segment of people in the local communities and nation. Hence, health workers, government officials, the rich, the poor, the educated and illiterates and other possible stratification of society are potential victims. A communitarian ethos is useful in at least two ways in relation to dealing with the uncertainties associated with pandemic influenza. Generally, it can—with the right pre-disaster public education—help ensure that people understand the unavoidable scientific and knowledge-related gaps in preparedness policies and specific plans put together to engage a specific outbreak. This will help avoid or minimize blame, since scapegoating during disease outbreaks causes different shades of disruption and target important actors including health workers.¹⁵⁷ In fact, the better educated the public is about the challenges of stockpiling vaccines, the more cooperative they will likely be to the vaccine-supply challenges that arise during an outbreak.

A communitarian ethos may also help engage the real and possible harms that may ensue due to the therapeutic uncertainties associated with pandemic influenza. These harms arise from the uncertain nature of what is knowable about a pandemic virus before it strikes as well as the biological limits of the therapeutic arsenals often produced within a very narrow time window. This is also generally tied to the reality that new health interventions including drugs and vaccines come with the possibility of some adverse events, which may be linked to the chemical/biological/physical components of the product, to genetic susceptibilities in certain individuals, or to

¹⁵⁶ Edmund D Pellegrino; David C. Thomasma, “The Good of Patients and the Good of Society: Striking a Moral Balance,” in *Public Health Policy and Ethics*, ed. Michael Boylan (Springer, 2006). Pp. 17–25.

¹⁵⁷ Shah. P. 125.

environmental triggers.¹⁵⁸ Keeping the public aware of this fact before and during an outbreak as well as emphasizing that accepting these risks (though uncomfortable at the individual plane) will serve to ensure the society overcome a pandemic should help garner some level of support critical to ensure proper compliance.

Since people are born with inherent human rights and do not have to earn them, it is hard to justify trumping the rights of some for the sake of public health. This is especially so if the people whose rights may be inhibited or violated do not consent to the process. To avert this, a discursive approach involving inclusive deliberations is essential. In this vein, the communitarian lens can help foster dialogue as well as call for the need to reward people for the sacrifices they may or will bear on behalf of the community and the society. For instance, guaranteeing that some compensation will be paid for financial losses incurred through workplace closure as well as apt public education about the nature, purposes, and conditions of quarantine facilities will help convince people that such temporary rights-related inconveniences are for the benefits of the overall society.

In relation to vulnerability and justice, the communitarian lens can help clarify the different kinds of social, biological, and natural vulnerabilities that face different people in different contexts. For example, it can offer a way of making the important distinction between general vulnerability that people will experience as human beings, vulnerability based on age, and occupational vulnerability seen in health professionals. Based on these distinctions, it can help underscore how context-specific cooperation will help ensure the overall success of the countermeasures adopted to engage a given pandemic. Critical to this, however, is the moral currency of trust. Trust shapes how the public evaluates risks and benefits. It also influences the acceptance of prescribed public measures to mitigate present or perceived risks.¹⁵⁹ Effective risk and crisis communication depend on public trust in the government during a pandemic. As such, a higher level of trust will influence a more positive level of social compliance. van der Weerd and colleagues corroborated this in their empirical study of the 2009 pandemic in the Netherlands.¹⁶⁰

In addition to trust, transparency in terms of how priorities will be made in terms of the allocation of vaccines as well as antiviral agents, and decisions pertaining to school and/or workplace closures is important. Even in western climes, public health experts have sometimes pointed out the paucity of transparency in ethical reasoning and the scanty explicit ethical justification for pandemic-related policies.¹⁶¹ Obviously, an atmosphere of trust and transparency will be conducive to

¹⁵⁸ S Sohail Ahmed et al., “Narcolepsy, 2009 a (H1n1) Pandemic Influenza, and Pandemic Influenza Vaccinations: What Is Known and Unknown About the Neurological Disorder, the Role for Autoimmunity, and Vaccine Adjuvants,” *Journal of Autoimmunity* 50 (2014). P. 2.

¹⁵⁹ Michael Siegrist, Timothy C Earle, and Heinz Gutscher, “Test of a Trust and Confidence Model in the Applied Context of Electromagnetic Field (Emf) Risks,” *Risk Analysis* 23, no. 4 (2003). Pp. 705–708.

¹⁶⁰ Willemien van der Weerd et al., “Monitoring the Level of Government Trust, Risk Perception and Intention of the General Public to Adopt Protective Measures During the Influenza a (H1n1) Pandemic in the Netherlands,” *BMC Public Health* 11, no. 1 (2011). Pp. 575–579.

¹⁶¹ JC Thomas, N Dasgupta, and A Martinot, “Ethics in a Pandemic: A Survey of the State Pandemic Influenza Plans,” *American Journal of Public Health* 97, no. S1 (2007). P. S29.

discussing and addressing issues related to local justice. This is especially relevant in relation to less wealthy nations or countries with weak institutions. For instance, it will be hard to garner cooperation in hitherto abandoned communities by appealing to communitarian ethos without addressing extant disparities in the social fabric as well as the healthcare system.

If human beings are located in particular communities but are willy-nilly part of a global community,¹⁶² how well the vulnerability and justice-related issues are locally addressed will influence the extent of their regional and global dynamics. This echoes the notion that badly managed local issues associated with pandemic influenza will pose more challenges and burdens at the regional and global levels. Since every nation lacks an equal capacity to deal with the local burdens of pandemic influenza, it is necessary for wealthier nations to rally around poorer ones. Indeed, the transcontinental nature of health disasters including pandemic influenza and SARS underscores the urgent need to strengthen how the global community deals with emerging infectious diseases, and how novel visions of global solidarity and cooperation will be key in such an endeavor.¹⁶³ This constitutes a preventive stance and falls well within the traditional agenda of public health. This approach is also a reasonable economic and health security choice as it will statistically cut down the possibility of global and transnational infection dissemination.

While the communitarian ethos as argued above offers some insights into how to flexibly engage the moral dilemmas generated by influenza outbreaks, its application in non-community-oriented contexts potentially raises some difficulty at the institutional and individual planes. Such possible difficulties, however, call for a global but locally nuanced moral framework. That theme, however, will be addressed in Chap. 6. For now, the rest of this chapter will explore another people-centric moral lens, care ethics, in relation to resolving the quandaries of pandemic influenza.

3.4.2 *Ethics of Care: Conceptual Elaboration*

In addition to the communitarian lens, the ethics of care perspective (EOC) constitutes a people-centric method of attempting to resolve ethical issues. Whereas it sometimes arrives at the same conclusions reached by traditional bioethical approaches,¹⁶⁴ employing it as a complimentary approach to the moral quandaries generated by pandemic influenza should yield additional nuances and insights *vis-à-vis* resolving the associated moral concerns. Care ethics emphasizes varying degrees of care within relational contexts ranging from the personal sphere to the realm of moral strangers. Hence, it is an *other* and people-centric moral lens. It has

¹⁶²Henk ten Have, *Global Bioethics: An Introduction* (Routledge, 2016). P. 113.

¹⁶³Peter A Singer et al., "Ethics and Sars: Lessons from Toronto," *British Medical Journal* 327, no. 7427 (2003). Pp. 1342–1343.

¹⁶⁴Edwards, "Is there a Distinctive Care Ethics?" P. 185.

been applied to diverse relational contexts including everyday lives, professional practices, social and public policies, as well as international relations.¹⁶⁵

For scholars like Steven Edwards, ethics of care uses a distinct ontological commitment to realize its outcomes as well as justify its stance.¹⁶⁶ It is an attempt to re-conceptualize and renegotiate the moral landscape in order to give room for a plurality of values.¹⁶⁷ Some have argued that the removal of friendship with its altruistic emotional sequelae and the subversion of virtue ethics from the sphere of morality were some key factors that warranted the moral change which birthed the ethics of care framework.¹⁶⁸ While EOC is also linked with gender-based morality which undergirded campaigns for equal employment opportunities between the sexes, legal rights, reforms of family life and sexual standards, and better education¹⁶⁹; scholars like Noddings have pointed out that it is broader and deeper than feminist ethics.¹⁷⁰ To be sure, one of its major impetus is the call for the expression of higher capabilities.¹⁷¹

Care ethics also encapsulates a spectrum of ideas. For Kittay, care constitutes an “achievement term” such that caring occurs only when specific acts of care have been carried out.¹⁷² In this vein, intentionality would not qualify as part of the baggage of care rhetoric. This obviously has some pragmatic appeal. Most people, for instance, would only appreciate care if it helps contribute towards relieving their current distress. Yet, caring may also constitute a general attitude and an orientation which may provide appropriate background conditions for shaping responses to others’ needs and states of distresses. Also, one may care but situational constraints may limit how a caring impulse may translate into pragmatic ends. Therefore, that someone simply “lacked opportunity” to show care as Apostle Paul writes in his epistle to the Philippians does not necessarily indicate the absence of care.¹⁷³ Hence, caring cannot be reduced only to materialistic terms. One way to distinguish the general caring orientation from specific acts of care is to refer to each as “caring about” and “caring for” respectively.¹⁷⁴

¹⁶⁵ Marian Barnes et al., eds., *Ethics of Care: Critical Advances in International Perspective* (Bristol: Policy Press, 2015). P. 4.

¹⁶⁶ Edwards, “Is there a Distinctive Care Ethics?” P. 190.

¹⁶⁷ Virginia Held, *The Ethics of Care: Personal, Political, and Global* (Oxford University Press, 2006). Pp. 1, 23–25

¹⁶⁸ Peter Ikechukwu Osuji, *African Traditional Medicine: Autonomy and Informed Consent* (Springer, 2014). Pp. 55–58.

¹⁶⁹ Marlene LeGates, *In Their Time: A History of Feminism in Western Society* (Routledge, 2012). P. 237.

¹⁷⁰ Nel Noddings, “Care Ethics and “Caring” Organizations,” in *Care Ethics and Political Theory*, ed. Maurice Hamington and Dan Engster (Oxford: Oxford University Press, 2015). P. 72.

¹⁷¹ Tronto, *Moral Boundaries* Pp. 61–63.

¹⁷² Steven D Edwards, “Is There a Distinctive Care Ethics?,” *Nursing Ethics* 18, no. 2 (2011). P. 190.

¹⁷³ Holy Bible, *King James Bible* (Project Gutenberg, 1996). Philippians 1:10.

¹⁷⁴ Noddings. P. 74.

Care ethics locates morality within the ambiance of family, friends, and colleagues, and ultimately towards the public sphere.¹⁷⁵ It rejects the independent and atomistic notion of the self and champions an inter-dependent and inter-related view.¹⁷⁶ This approach grants EOC a psychological gestalt to which people brought up in caring relationships, at least in the early phases of their lives, can readily identify with. It thus partly appeals to Kohlberg's theory of moral development. Here, the emphasis is put on the foundational roles of trust and its place in fostering a deepened sense of reciprocity within a social context of inequality.¹⁷⁷ Not surprisingly, some ethicists describe caring as the primary virtue which offers a general account of right *versus* wrong actions as well as political justice.¹⁷⁸

Whereas the informal social contract idea underlies inter-personal and state-individual relationships,¹⁷⁹ the care ethical lens may be applied to the personal sphere as well as social institutions¹⁸⁰ due to its multiple ways of situating relationality.¹⁸¹ Indeed, EOC focuses on attentiveness and sensitivity to the needs of others¹⁸² and offers a moral compass for teasing out delicate boundaries between obligation-based ethics and responsibility-based ethics. As such, it seeks to transcend the depersonalized realm of asking "what obligations do I have to Mr. X" to the humane realm of asking "how can I help Mr. X" in scenarios of moral crises.¹⁸³ Since caring embodies an activity, a set of activities or a labor of care from one person to the other, it presupposes that the capacity for receiving care¹⁸⁴ will be present in the recipient(s) of care.

Public health disasters including pandemic influenza with their myriad of ethical and pragmatic challenges create a spectrum of needs and contextual dependencies which some people will have to meet, directly and indirectly. It thus creates different types of *carer versus cared-for* relationships between and amongst victims, at-risk people, health workers, and government officials. Since it is a foundational nexus like these that underlie the caring ethic, it will be insightful to examine how the ethics of care moral lens may help resolve the moral dilemmas elicited during pandemic influenza outbreaks.

¹⁷⁵ Osuji. P. 58.

¹⁷⁶ Edwards. P. 187

¹⁷⁷ Joan C Tronto, *Moral Boundaries: A Political Argument for an Ethic of Care* (Routledge, 1993). Pp. 63–72.

¹⁷⁸ Held. P. 19.

¹⁷⁹ Robert M Tenery JR, "The Challenge of Universal Access to Health Care with Limited Resources," in *The American Medical Ethics Revolution: How the A.M.A.'s Code of Ethics Has Transformed Physicians' Relationships to Patients, Professionals, and Society*, ed. Robert B Baker, et al. (1999). P. 253.

¹⁸⁰ Held. Pp. 10, 15, 17.

¹⁸¹ Marian Barnes, "Beyond the Dyad: Exploring the Multidimensionality of Care," in *Ethics of Care: Critical Advances in International Perspective*, ed. Marian Barnes, et al. (Bristol: Polity Press, 2015). Pp. 31–32.

¹⁸² Held, *Ethics of Care* 37–39

¹⁸³ Edwards. P. 188

¹⁸⁴ Osuji. P. 59.

3.4.2.1 Ethics of Care *vis-à-vis* the Quandaries of Pandemic Influenza Outbreaks

Whereas Tirima recently argued that ethics of care is irrelevant to addressing the moral imperatives in disaster scenarios because it only builds off on relationships and, therefore, requires some proximity between the *caring* moral agent and the *cared-for* victim,¹⁸⁵ such a stance is flawed for at least three important reasons. Firstly, care ethics can, through relevant public policy,¹⁸⁶ positively influence how victims of disasters are cared for. Secondly, contexts of duty exist between some of the players and victims of disasters which form the basis of a relationship of caring. For instance, healthcare professionals incur fiduciary duties to at-risk people, victims of a public health disaster as well as the general populace that may potentially be infected and infect others. Thirdly, if the care ethical prism emphasizes how individuals may offer help “in scenarios of moral crises,¹⁸⁷ then it should be relevant in health scenarios where different kinds of conflicting moral emergencies occur.

The application of care ethics to specific disaster contexts such as influenza outbreaks, however, requires elaboration. Specifically, this needs some explication with reference to issues of uncertainty, vulnerability, human rights and justice. Whereas the dilemma of uncertainty that arises during pandemic influenza affects everyone, it will affect different sets of people differently. For instance, the biological uncertainties associated with an influenza outbreak are not known to the same extent by public health experts, health workers, the literate, and illiterate members of the society.

Caring about the potential practical consequences that may result from the attendant “ignorance” gap should, therefore, involve sharing as much useful information as possible between and amongst the different rungs of people. The relational context, in this regard, may be situated and realized through professional associations, institutional contexts, public announcements through media outlets and patient-health professional interactions. Kunin et al. recently reported on how primary care physicians helped pass on important pandemic-related information to out-patients during the 2009 pandemic in Israel. This, they concluded, helped enhance the success of the national pre-pandemic preparedness plans.¹⁸⁸ Indeed, during public health disasters, the speed at which information is needed by policymakers may be faster than is usually possible through traditional mechanisms of research

¹⁸⁵ Humphrey G Tirima, “Unprecedented Lead Poisoning Outbreak in Zamfara, Nigeria: A Multidisciplinary Humanitarian Response to an Environmental Public Health Disaster in a Resource Scarce Setting” (University of Idaho, 2014). Pp. 110–111.

¹⁸⁶ Helena Olofsdotter Stensöta, “Public Ethics of Care—a General Public Ethics,” *Ethics and Social Welfare* 9, no. 2 (2015). Pp. 183–185.

¹⁸⁷ Edwards. P. 188

¹⁸⁸ Marina Kunin et al., “Challenges of the Pandemic Response in Primary Care During Pre-Vaccination Period: A Qualitative Study,” *Israel Journal of Health Policy Research* 4, no. 32 (2015). Pp. 1–5.

dissemination. This scenario makes information sharing a norm; even possibly those provided by preliminary research findings.¹⁸⁹

Humans instinctively show care to other humans in need. While this caring instinct has been socially modified and conditioned in some parts of the world where individualistic tendencies run rife, some communal-oriented cultures give room for a freer expression of the instinct of care. The instinct of care may, however, be counterproductive in the context of PHDs. For instance, during pandemic influenza, sick and dying patients remain active carriers of infection,¹⁹⁰ as such, will infect susceptible friends and relations who feel obligated to show care in relation to helping them. In other words, “unbridled” caring may increase the vulnerabilities elicited during pandemic influenza. Yet, the care ethics moral lens may help modify and re-direct the caring impulse in a more socially useful way during a pandemic.

The other-centric nature of the EOC lens implies that people should care not only about themselves but about others, perhaps, even moral strangers. How person A will care during a public health disaster will, however, differ from how B will choose to act in a manner that reflects care, depending on their levels of knowledge, resources available to them as well as their social and spatial location. In other words, how a healthcare worker will care professionally in the hospital context and supererogatorily in the non-hospital context will differ from how a lay member of the society can show care in a pandemic situation. However, appealing to the EOC may help facilitate the selflessness needed. If someone cares that their society survives an influenza outbreak, then they should be willing to play roles that will help bring about that goal. This will facilitate compliance with therapeutic measures such as vaccines and antiviral drugs as well as non-pharmaceutical measures such as contact tracing, quarantine, and workplace closure. Collective adherence to these measures will help cut down the susceptibility and vulnerability of individuals, groups of people, and the society to the impact of influenza outbreaks.

By enabling the willingness of people to subject themselves to the public health restrictions required to contain pandemic influenza and accept the potential risks and side-effects associated with vaccines and antiviral agents, the EOC approach may indirectly eliminate or downplay the human rights-related quandaries engendered by pandemic influenza. Noddings has argued that attentiveness and responsiveness are exigent to rights, flowing from one person to the other.¹⁹¹ If this is true, then the EOC may help individuals adjust the emphasis they place on articulating their rights contextually during an influenza pandemic for the sake of the collective good.

Finally, an appeal to the care ethical lens may help address the moral quandaries associated with local justice. Although some versions of care ethics hold the posi-

¹⁸⁹NS Crowcroft, LC Rosella, and BN Pakes, “The Ethics of Sharing Preliminary Research Findings During Public Health Emergencies: A Case Study from the 2009 Influenza Pandemic,” *Eurosurveillance* 19, no. 24 (2014). Pp. 1–3.

¹⁹⁰Shah. P. 87.

¹⁹¹Noddings. P. 72.

tion that it is not possible to integrate and apply justice to care,¹⁹² such a limitation hardly applies to the context of a public health disaster such as pandemic influenza. For instance, the different conflicting priorities that arise during influenza outbreaks such as rationing of limited resources will be easier if some people are at least willing to forgo their interests for others. In non-familial *carer* and *cared-for* relationships involving at-risk government representatives and at-risk members of the society and familial relationships involving parents and children living in the same house, an appeal to a care ethical lens may help drive the moral sensitivity to the needs of others, enabling some vaccine-eligible persons (under the standard rationing criteria) to forgo their ration, preferring rather that other at-risk people (for example, ordinary people and younger family members) have them. This kind of selflessness approximates some form of humanitarian act in that person A decides to overlook their interests for others “without expecting rewards”.¹⁹³

However, because human beings naturally seek their own personal interests, there may be some difficulty in achieving this *other-centric* goal in as many people as possible in a public health disaster situation. This implies that the care ethical lens may have some limitations in relation to sufficiently engaging the ethical dilemmas raised by pandemic influenza in particular and other types of public health disasters, in general. That theme will, however, be addressed in Chap. 6.

3.5 Conclusion

During disasters, there is the utilitarian goal of doing the most good for as many people as possible with minimal harm.¹⁹⁴ A people-oriented moral lens, this chapter argues, may be apt in accomplishing such an agenda. The chapter explored the strengths of the communitarian and care ethics moral lenses in relation to engaging the moral quandaries elicited during pandemic influenza outbreaks. Because it is difficult to engage pandemic outbreaks with little prior preparation,¹⁹⁵ these moral lenses become important since they can help people develop an other-centric orientation and sensitivity to the needs of others.

To systematically drive the importance of a people-centered approach to pandemic influenza, this chapter explicated the biological make-up of the influenza virus as well as the social and global features of the associated pandemic. This helped underscore the local, regional, and global seriousness of pandemic influenza as a distinct type of public health disaster. The chapter went on to show how an

¹⁹² Barnes et al. P. 5.

¹⁹³ Laurel A Spielberg and Lisa V Adams, *Africa: A Practical Guide for Global Health Workers* (UPNE, 2011). Pp. 1–2.

¹⁹⁴ Aasim Ahmad, Mahmud Syed Mamun, and Dónal P O’Mathúna, “Evidence and Healthcare Needs During Disasters,” in *Disaster Bioethics: Normative Issues When Nothing Is Normal*, ed. Dónal P O’Mathúna, Bert Gordijn, and Mike Clarke (Netherlands: Springer, 2014). Pp. 100–101.

¹⁹⁵ Vawter, Gervais, and Garrett. P. 6535.

understanding of the social and biological dynamics of influenza has shaped the therapeutic and non-therapeutic approaches to engaging outbreaks. It also articulated some of the attendant limitations of pandemic influenza countermeasures including vaccines and anti-viral drugs.

This chapter has also highlighted the ethical quandaries generated by influenza outbreaks. These are issues related to epistemic and social uncertainty, biological, social, geographical and political vulnerabilities, potential violations of human rights through some of the therapeutic and non-therapeutic countermeasures, as well as issues of local and global justice. Against this conceptual background, the chapter pointed out how helping people is a central concern in pandemic influenza, and how the thorny ethical issues constitute difficulties encountered in accomplishing this goal. On that note, it showed how people-centered lenses such as communitarianism and ethics of care may be useful in engaging the associated practical and moral challenges.

To clarify the importance of each of these approaches, the chapter elaborated each of these ethical lenses, and showed how each may help orient different players in the context of a pandemic influenza towards acquiring a sense of community and an *other*-centric sensitivity which will be essential to resolving the moral dilemmas as well as realizing the critical public health objective central to such a public health disaster. However, partly because there are limited grounds for deciding what the limits of practical reasoning will be *ab initio*,¹⁹⁶ and partly because of the complexities and nuances that are associated with the global dimensions of the issues at stake in pandemic influenza situations, these ethical lenses may suffer some limitations. Whereas this chapter has examined none of such limits, they will be engaged in Chap. 6 where the relational-based global ethical framework will be formulated.

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¹⁹⁶ Kymlicka. P. 203.

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