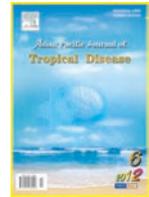


Contents lists available at [ScienceDirect](http://www.sciencedirect.com)

Asian Pacific Journal of Tropical Disease

journal homepage: www.elsevier.com/locate/apjtd



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Ethical issues in the prevention of H1N1: the Malaysian experience

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ARTICLE INFO

Article history:

Received 22 August 2012

Received in revised form 27 August 2012

Accepted 3 September 2012

Available online 28 December 2012

Keywords:

Ethical issues

H1N1

Malaysia

Mitigation efforts

ABSTRACT

The novel H1N1 influenza virus that emerged in humans in Mexico in early 2009 and transmitted efficiently in the human population with global spread has been declared a pandemic strain by WHO. Here we reviewed the role of ethical issue in the prevention of H1N1. Studies with original data related to the ethical issues in the prevention of diseases (published 1996–2012) were identified via searching electronic databases to extract related information. The role of ethical issues in the prevention of diseases must be understood. This comprises work on how the society understands about a disease and what are their individuals' tasks to conquer the outbreak. Such understanding feeds into health damaging or health promoting behavior which eventually will help in the implementation of various disease control measures. The promises of ethical issue in the various control measures that may be taken to fight the danger of pandemic H1N1 are great.

1. Introduction

From April 2009 a pandemic caused by a novel H1N1 virus has been ongoing^[1]. As of August 2009, more than 182 000 laboratories confirmed cases of pandemic influenza H1N1 with 1 799 deaths, in 177 countries and territories that have been reported to WHO^[2]. As of 11 October 2009, more than 399 232 cases and at least 4 735 deaths have been reported in more than 122 countries^[2]. In Malaysia alone, 77 deaths have been confirmed. As of August 21 2009, the unofficial number of cases reported in the media so far is 5 876 in Malaysia. In this review, we explore the ethical issues that are relating to the prevention of H1N1. The recognition saying that ethical issues help to prevent diseases is proven world wide. For millennia people have accepted the relationship between the social environment and disease. With globalization which increased the deep connections between individuals, and the wider world has risen rapid spreading of new diseases including the pandemic H1N1 and can no longer be overlooked. Hence, the discussion of the ethical issues in the prevention of H1N1 must move not only beyond the clinical medicine and vaccine but it must consider ethical implications, well-entrenched norms and the moral responsibilities of individuals in a society.

2. Methods

The online databases for published data with the information on ethical issues in the prevention of diseases were extracted from the papers to obtain related information and the papers were cited.

3. Influenza virus H1N1

Influenza virus is a common human pathogen that has caused severe respiratory sickness and fatality over the past century. Swineflu virus, a respiratory virus initially known to cause infection in pigs, belongs to the Orthomyxoviridae family of viruses that include influenza A, influenza B, influenza C and thogotoviruses^[3,4]. A pandemic happens when a new type of influenza strain appears in the human population and then spreads easily from person to person^[5,6]. H1N1 virus was first detected in human beings in April 2009. The novel H1N1 virus is a combination of the swine, human and avian flu genes drawn from different strains that infect pigs^[7]. The high risk categories for H1N1 flu-related complications include pregnancy, diabetes, heart disease, asthma and kidney disease. The virus is spread from person-to-person. It is transmitted as easily as the normal seasonal flu and can be passed to other people by exposure to infected droplets expelled by coughing or sneezing that can be inhaled, or that can contaminate hands or surfaces^[8,9]. Signs of influenza A (H1N1) are flu-like, including fever, cough, headache, muscle and joint pain, sore throat and runny nose, and sometimes vomiting and diarrhoea^[8].

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4. Prevention and treatment

The swine influenza A/H1N1 viruses characterized in this outbreak have not been previously detected in pigs or humans. The viruses so far characterized have been sensitive to oseltamivir, but resistant to both amantadine and rimantadine^[2]. Hence prevention remains as the best method for eradicating the pandemic H1N1. In the event of influenza pandemic being declared by WHO, the Ministry of Health, other governmental departments and agencies and non governmental organizations were activated by putting into action plans for the overall management of the influenza pandemic H1N1 in Malaysia. Various disease mitigation efforts to prevent morbidity and mortality associated with the pandemic H1N1 were introduced to prevent its entry into the country or when transmission first occurred in the country, slowing down the transmission. Many disease mitigation efforts were introduced to prevent H1N1; sick people with influenza symptoms were not allowed to travel out of any country having a pandemic; entry points screening of travelers from pandemic countries into the country; exit screening for all travelers from areas with human infection; screening of passengers on-board aircraft for pandemic influenza; all suspected cases were isolated and their contacts were placed under home surveillance for a period of double the incubation period (10 days); educate the people on strict hand hygiene or washing; recommend wearing appropriate face masks; temporary closures of public places; and cancellation of public gatherings or events to reduce risks of transmission. Measures were generally not taken to close schools because children would get sick just as easily out of school. Quarantine was considered to be an effective mitigation strategy. The outbreaks and infection were successfully under control by implementing all these strategies by the Ministry of Health, Malaysia.

5. Quarantine and individuals' altruism

Quarantine was considered to be an effective mitigation strategy in Malaysia. In many areas of public health, claims of individual autonomy do not always conform to the policy of those health authorities who are keen to promote measures that are of general benefit to the society. In different ways, personal behavior may have an impact on the health situation in communities. For example, quarantine for suspected H1N1 patients was voluntarily accepted in many countries, whereas such a regimen may reject in other countries. As regards the H1N1 pandemic, the issue of violation of individual autonomy raises several obvious concerns, including contact tracing of infected people in order to reduce the risk of secondary or tertiary transmission. Because the attitude towards issues regarding individual autonomy depends upon cultural and political situations, it has been argued that the role of the individuals' altruism and responsibility in the implementation of society's interventions in disease prevention. Some people have an unselfish concern for the wellbeing of other people, which a behavioral property normally referred to as altruism. Such caring behavior has been described as a mediating factor between environmentally responsible behavior and personality characteristics related to self-affirmation^[10]. Empirical tests have supported this finding^[11]. Malaysia is a multiracial country where three major Asian races live

together: Malay, Chinese and Indian. In addition, there are a number of native or indigenous races, particularly in East Malaysia, Sabah and Sarawak. It is generally considered that the population in this North Eastern region is poorer and more rural than the population of the west coast of the peninsular^[12]. Islam is the largest and the official religion, other large religions include Buddhism, Hinduism, and Christianity. Minority religions practiced here are Sikhism, Daoism, Confucianism, shamanism, and animism. The breakdown of the major religions are follows^[13–15]. Most of the world's religions promote altruism as a very important moral value. All the major religions follow by Malaysian such as Islam, Judaism, Hinduism, Christianity, Buddhism, and Sikhism place particular emphasis on altruistic morality. Since, the major religions follow by the Malaysian stress the altruistic morality the implementation of society's interventions in disease prevention can easily achieved without many obstacles. This is possible because society with such a moral value will be abided by government policy for the well being of the individual in a community. The most likely solutions lie within liberalism which believes that individuals should be free to live as they think best, subject only to the limitation that their actions and choices should not cause harm to others. This captures the idea that we should respect individual rights but also identify strict limits to those rights^[16].

6. Behavioural changes through information

The role of ethical issues in the prevention of diseases must be understood by individuals and by the government agencies, and this understanding takes place within a social context. This is because disease does not only affect the physical body, it also affects the 'social body', the relationships between people^[17]. Much work demonstrate how ethical issue helps to prevent the spreading of diseases. This includes work on how the society understands about a disease and what are their individuals' responsibilities to overcome the outbreak. Such understanding feeds into health damaging or health promoting behavior which will help in the implementation of disease prevention strategies. Youth coming from lower socio-economic groups frequently have less access to risk reduction information and less support for engaging in risk reduction behaviour. Levels of knowledge and awareness about H1N1 are very low in a general population and high risk groups at the beginning of pandemic H1N1. Efforts must be underway to devise educational materials for the society for their better understand of the new diseases. For this, the government should concentrate more on raising public awareness, disseminating information about the threat of H1N1 through posters and media coverage to educate the people to change their behavior to prevent the spreading of diseases. Malaysia had successfully controlled (number of death cases) the pandemic H1N1 as of the effective instructions and guideline that was given by the government to the society to mitigate the spreading of the disease. Despite the large number of prevention measures, the moral responsibilities and cooperation of individuals appear to have a significant impact on the prevention and management of the disease. Because the dominant mode of H1N1 transmission is individual communication, strategies to modify behaviour are a key component of H1N1 prevention.

7. Government and public policy

Politics is about improving the quality of life of the people of a nation. As the benefits to society are superior than the individuals, public policy measures aim to increase demand closer to the social optimum by promoting the preventive actions or through compulsory preventive actions, although such a policy is almost always biased. In reality, the purpose of government involvement with various disease mitigation efforts to prevent morbidity and mortality is to improve welfare by lowering endemic prevalence rather than achieving eradication, since eradication may be too expensive relative to its benefits^[18]. The transmission and control of H1N1 pandemic are strongly influenced by both the individual and collective choices that people make. If individual behaviour does not match with the social optimum, society as a whole faces the costs of morbidity and mortality associated with the spread of infectious diseases. Moreover, the outcome of individual's free choice does not guarantee the social optimum. Similarly, authoritarian preventive actions do not achieve the social optimum because the effect of such policy is counteracted by individual behavioural response in the prevention of H1N1 pandemic. However, the effect of such policy would be smaller than what is desired because of the counteracting effect of behavioural responses on the expected outcome of interventions^[19]. Behavioural responses have great influence on public policy's pursuit to control H1N1 transmission, and policy suggestion without incorporating such behavioural responses will not produce the best social outcome. Given this background, the ideal solution would be to coordinate public policies by designing strategies which are best able to motivate individual's free choice towards a social optimum. Policy intervention should therefore be based on a better understanding of people's choices and be complemented by providing better information and education to a concerned population rather than attempting to overcome this social dilemma solely through authoritarian interventions. The term authoritarian is used to describe a state which enforces strong and sometimes oppressive measures against those in its sphere of influence, generally without attempts at gaining their consent and often not allowing feedback on its preventive policies. In an authoritarian state, citizens are subject to state authority in many aspects of their lives^[19]. Malaysian government did not use authoritarian interventions for the prevention of H1N1 pandemic in Malaysia. Alternatively the Malaysia government coordinates the public policies by designing strategies which are best able to motivate individual and complemented by providing better information and education for their better understand of the H1N1 pandemic.

WHO is advising countries with tropical climates like Malaysia, where the pandemic virus arrived later than elsewhere, to prepare for a future wave of pandemic spread. To overcome the future wave of pandemic spread of H1N1, it is not only important to focus in prevention strategies but also on the ethical issues as a significant factor with a good quality implementation.

Conflict of interest statement

We declare that we have no conflict of interest.

Acknowledgements

Subramanion Jothy was supported by My PhD. fellowship from the Ministry of Higher Education, Government of Malaysia, Malaysia.

References

- [1] Neumann G, Noda T, Kawaoka Y. Emergence and pandemic potential of swine-origin H1N1 influenza virus. *Nature* 2009; **459**: 931–939.
- [2] World Health Organization. Influenza A (H1N1)—update 70. Geneva: World Health Organization; 2009a. [Online] Available from: http://www.who.int/csr/don/2009_10_16/en/index.html. [Accessed on 21st November, 2011].
- [3] Lamb RA, Krug RM. *Orthomyxoviridae: the viruses and their replication*. Philadelphia: Lippincott–Raven Publishers; 1996, p 1353–1395.
- [4] Voyles BA. *Orthomyxoviruses*. 2nd ed. New York: McGraw–Hill; 2002, p 147.
- [5] Khanna M, Kumar P, Choudary K, Kumar B. Emerging influenza virus: a serious global threat. *J Biosci* 2002; **19**: 475–482.
- [6] Khanna M, Akhtar N, Srivastava V, Kumar P, Vijayan VK. Biological and epidemiological aspects of influenza virus H5N1 in context of India. *Indian J Exp Biol* 2006; **44**: 265–278.
- [7] McKinney WP, Volkert P, Kaufman J. Fatal swine influenza pneumonia during late pregnancy. *Arch Intern Med* 1990; **150**: 213–215.
- [8] World Health Organization. Pandemic (H1N1) 2009; What is the new influenza A(H1N1)? Geneva: World Health Organization; 2009b. [Online] Available from: http://www.who.int/csr/disease/swineflu/frequently_asked_questions/about_disease/en/index.html. [Accessed on 21st November, 2011].
- [9] Shahid M. On the roads to H1N1 pandemic era: drive safe and fearless using colour—coded masks. *Asian Pac J Trop Med* 2012; **5**(4): 333–334.
- [10] Geller ES. Actively caring for the environment: an integration of behaviorism and humanism. *Environ Behav* 1995; **27**: 184–195.
- [11] Allen JB, Ferrand JL. Environmental locus of control, sympathy, and proenvironmental behavior. A test of Geller's actively caring hypothesis. *Environ Behav* 1999; **31**: 338–353.
- [12] Sasidharana S, Uyub AM. Prevalence of *Helicobacter pylori* infection among asymptomatic healthy blood donors in Northern Peninsular Malaysia. *Trans R Soc Trop Med Hyg* 2009; **103**: 395–398.
- [13] Population and Housing Census 2000 (Press statement). Department of Statistics, Malaysia, 2007.
- [14] General Report of the Population and Housing Census 2000. Putrajaya: Department of Statistics, Malaysia, 2005.
- [15] Census of Population and Housing Malaysia 2000. Putrajaya: Department of Statistics, Malaysia.
- [16] Asheroft RE. Individual freedom versus collective responsibility: an ethicist's perspective. *Emerg Themes Epidemiol* 2006; **3**: 11.
- [17] Barnett T, Blaikie P. *AIDS in Africa: its present and future impact*. London: Belhaven Press, 1992.
- [18] Gersovitz M, Hammer JS. Infectious diseases, public policy and the marriage of economics and epidemiology. *World Bank Res Obser* 2003; **18**: 129–157.
- [19] Zia Sadique. Individual freedom versus collective responsibility: an economic epidemiology perspective. *Emerg Themes Epidemiol* 2006; **3**: 12.