

Editorial

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With the expansion of the 'open source' philosophy and its derived 'open research' projects, new scientific insights into viral diseases could be disseminated more rapidly, favoring the accessibility to research findings for more efficient responses to pandemics. The recent example of the influenza virus highlights the prime importance of the open science in accelerating major discoveries.

Nevertheless, the now successful proliferation of these non-classical approaches had a difficult and skeptical start, resulting in a delay for preventing the propagation of the virus. Looking back, eight years of preparation for life-threatening pandemic influenza did not leave more than a disappointing feeling. Indeed, although few of the planned pandemic measures worked, the H1N1 flu is spreading rapidly worldwide, not only in nations such as the United States, China and European countries, but also appearing in isolated indigenous groups. As of October 17, the World Health Organization (WHO) announced that the global number of confirmed cases of infection topped more than 414,000, with at least 5,000 reported deaths all around the world. The fear that the massive breakout will parallel seasonal flu during and most probably after autumn adds to the difficulties in treating the virus. A long history in influenza spreads witnesses that in urban areas with higher population densities and in rural areas with a large proportion of elderly people, approximately 30 percent of the population is affected by each new type of flu during its first large breakout. With a global population of about 6.8 billion people, the total number of cases affected by H1N1 could reach 2 billion, nearly two times the total population of China, and about ten times the population of the United States. If the recent study by a team at Utrecht University, Netherlands, is confirmed to be correct, indicating that the flu's lethality rate falls at about 0.5 percent, more than 10 million people could perish. A dreadful memory: the Spanish flu H1N1 in 1918 killed more than 50 million people, 3% of the world population. The question then remains: how to guard against the H1N1 flu?

The WHO places high expectations in the vaccine for the new flu to prevent at some level the spread of the H1N1 strain of influenza A. However, although WHO chief Dr. Chan reported that clinical trials of vaccines indicate that a single dose would keep safe healthy adults, former vaccination programs could not repulse past epidemics of seasonal influenza. Nevertheless, medical experts drew attention to the fact that the vaccination of a large number of people can slow the spread of infection significantly, with the only drawback being that flu vaccine provides only weak preventive effects. As vaccination efforts increase, the battle against H1N1 has not gone smoothly. The results of the new flu vaccine, although encouraging, are treated by governments with cautious optimism, while efficient and reliable measures to assert the safety of imported vaccine and detailed procedures to deal with possible side effects have not yet been settled. Additionally, lower-than-expected vaccine yields worldwide when compared with the manufacturers' initial esti-

mates have lessen the total number of doses available, leading to the cancellation or scaling down of vaccination clinics across nations.

Unlike the ordinary flu virus encountered during seasonal epidemics, swine H1N1 has been shown to multiply in the bronchial tubes and the lungs. Early in the emergence of the current pandemic, it was reported that for Mexican patients who had serious pneumonia and died of the new flu, the damage to the lungs resembled the effects of the highly pathogenic avian flu H5N1, yet another threat to human health. Taking together with the high potential of influenza to mutate and become transparent to vaccines (reason why the seasonal flu vaccine flu has to be produced annually), more generic solutions for fighting the virus are to be approached. Thus, the growing number of reports showing that antiviral drugs such as Relenza (GSK), Tamiflu (Roche Ltd.), and more recently Peramivir (BioCryst Inc.) can stave off the worst effects of the disease appears as an encouraging news. Consequently, nearly all developed countries are now involved in major stock piling of the drugs.

Although reports of potentially dangerous side effects in infants treated with the drugs have been published, the rate of these abnormal behaviors is not significant in the eyes of most physicians when compared with the impact of H1N1 itself on human health. Nevertheless, as an increasing number of mutant strains resistant to the antiviral drugs are being identified, it becomes a scientific priority to develop new ways of fighting the disease. Considering the growing pressure placed upon those in a quest against time to efficiently restrict further spreading of the virus, together with the economic implications lying behind the manufacturing of such drugs, how can we maintain the scientific undertaking robust and engaged with the public? There are no easy solutions. Each media formats has its strengths. While TV, radio, and the Internet quickly distribute news, open source scientific communications allow fast and efficient exchange of prime data that maintain up-to-date information related to the advances of the pandemics. As a concrete example, the present issue of the *Journal of Antivirals & Antiretrovirals* emphasizes the growing interest that researchers place in such way of communication. When nations are experiencing times of trouble and doubts upon pandemics, it is all the more important to share details information and to act jointly against viral threats.

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