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The global condition of epidemics: Panoramas in A (H1N1) influenza and their consequences for One World One Health programme

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ABSTRACT

Among the most relevant elements contributing to define the One World One Health programme we find epidemics. The reason is that in recent decades, infectious diseases such as HIV/SIDA, SARS and Influenza have shown that we need new approaches and concepts in order to understand how biological emergencies and health alerts deploy new scales of action. Especially relevant has been the case of A(H1N1) influenza. This reached the status of global threat virtually from its onset, triggering an international response with a diffusion, visibility and rapidity unparalleled in previous health alerts. This article maintains that this global condition cannot be explained solely by the epidemiologic characteristics of the disease, such as mortality rate, severe cases, propagation capacity, etc. Resorting to the approach proposed by the Actor-Network Theory (ANT), this paper suggests that the action of certain socio-technical operators was what built a heterogeneous network of ideas, concepts and materials that turned the A (H1N1) influenza into a global-scale phenomenon with unprecedented speed. Among these operators, the most important ones were: the speaking position, a discourse about threat, the protocols and guidelines that were used and, lastly, the maps that allowed a real-time monitoring of the influenza. The paper ends with the notion of *panorama*, as defined by Bruno Latour: a suggestion to describe the common denominator of the aforementioned operators, and a means to foresee the development of global scales for certain health alerts. The paper will conclude by proposing that this type of analysis would allow the One World One Health to understand with greater precision the dynamic of epidemics and thus make its principles of action much more specific as well as its definition of what global health should be.

1. Introduction

In recent years expressions such as One Health, Big Medicine, Global Health and One World One Health have acquired a certain degree of currency. They all refer to the necessity for a global well-being arising from the well-being of human beings, animals and the environment (Gibbs and Anderson, 2009; WHO et al., 2008). Among these expressions One World One Health seems to be prevailing over the rest. To a large degree this is due to the Manhattan Principles on One World One Health, which were announced on September 29, 2004 at a symposium organized by the Wildlife Conservation Society and hosted by The Rockefeller University (Wildlife Conservation Society, 2004).

At this meeting, on the basis of analysis of the recent outbreaks of West Nile Virus, Ebola Hemorrhagic Fever, SARS, Monkeypox, Mad Cow Disease and Avian Influenza, the twelve principles, which make up the One World One Health program, were set out. These principles urge world and civil society leaders, global health institutions and the scientific community to jointly respond to a situation characterized by: a) a general and global transformation of life on the planet due to factors such as climate change, pollution, loss of biodiversity and human population growth, b) increasingly common infectious disease threats to humans, domestic and wild animals and c) the ease and speed with which such threats can reach a global scale (Leboeuf, 2011; Sida Animal Health, 2009; WHO et al., 2008; World Bank/OIE, 2008). The Manhattan Principles, recognizing the link between human, domestic animal, and wildlife health, and the threat disease poses to people, their food supplies and economies, and the biodiversity essential to maintaining healthy environments and functioning ecosystems, put forward the imperious necessity of a Global Medicine – one without limits among species and one with a scope in different scales.

This program is based on two essential assumptions. Firstly, it is based directly on cases the majority of which can be categorized as

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Emerging Infectious diseases (EID) and more specifically, epidemics, with influenza being the most notable of these. And secondly, the risk of a rapid spread and global reach of these epidemics appears as the model of the main threat, which the One World One Health program should aim to prevent. These two assumptions are obvious from a perusal of the already existing literature on this approach (Alive, 2007; American Veterinary Medical Association, 2008; FAO, 2008; FAO et al., 2008).

Traditionally, the notion of epidemic is uncritically associated with a phenomenon of generalization, which is taken for granted and is directly tied to the biological–medical component related to any infectious vectors. Nonetheless, this global scale can be analyzed and understood from a different angle. Rather than regarding it as a biological effect, it can be described as a production, a scale that is built and requires a series of operators to elaborate it and make it effective. As some authors have pointed out, the high visibility of an epidemic is not always tied to biologic effects, as these are not noticeable, but to a retrospective historical and demographic analysis (Rosenberg, 1992; Ranger and Slack, 1992; Watts, 1997; Van Loon, 2005). In this way, the surprising rapidity with which the A (H1N1) influenza became a global phenomenon raises questions about the factors and the structures that made it possible.

Thus, the examination of how an epidemic acquires this global condition is fundamental to One World One Health for various reasons. In the first place, because epidemics are not only a biological or medical problem; along with these dimensions we find other problems, such as political, discursive, and technological ones. All these dimensions are entangled in a single totality with a homogeneous logic. Secondly, all these dimensions transform the social, political, technological, and medical aspects of our daily life. That is to say, an epidemic is something more than a medical threat: it is an event that completely transforms our immediate reality. Thus One World One Health amounts to something much greater than a medical program. Its relationship with epidemics and its proposals for action make it into something that aspires to participate in the immediate constitution of our reality.

This article will examine how epidemics achieve their global condition, looking beyond simply epidemiological data, and focusing on the A(H1N1) flu outbreak. It puts forward the view that the global condition of A(H1N1) influenza was not merely declared due to the medical features of the illness such as the virus's ability to mutate, its easy transmission or its death rates. Rather, we suggest that the global effect of H1N1 influenza should be sought in the activity of specific techno-social operators, which generated and brought together the necessary conditions for this global possibility. In order to prove the aforementioned hypotheses, first of all this paper will analyze the way in which medicine, and, more concretely, epidemiology, regards the global condition of an epidemic. Secondly, it will argue that the Actor-Network Theory (ANT) gives us instruments to conceptualize that condition in a different manner. Rather than tying it to the biological nature of the phenomenon, the concepts of operator and panorama allow the global scale to be defined as a production based on the articulation of a complex infrastructure, made of heterogeneous elements. Thirdly, it will describe the *operators* that had a specific role in the creation of an important global condition for the A(H1N1) influenza. Finally, it will resort to the notion of panorama, as proposed by Bruno Latour (2005), to describe the global status of certain biological phenomena in contemporary society. The paper will conclude by proposing that this type of analysis would allow One World One Health to develop a broad and socio-technical way of understanding the dynamic of epidemics and their consequences.

2. According to epidemiology, when does an epidemic turn global?

The first cases of the A (H1N1) influenza that were confirmed in the laboratory were diagnosed in California (US), on April 17, 2009. The same country was then affected by the first confirmed death attributed to the above-mentioned outbreak (CDC, 2009). From this date on, the epidemic of A (H1N1) has been surrounded by a vigorous debate, which has been documented and fueled by the media (Yang et al., 2009). The reasons for this debate are not to be found in the strictly medical or biological aspects of the outbreak. In this respect, it might be useful to recall a few facts. First of all, the influenza was classified as new not because it is a type A outbreak, or a H1N1 subtype – the well-known pandemic of influenza of 1918 was a type A/H1N1, and since the seventies this type of virus has been detected in seasonal outbreaks; it was because a different strain was found, the so-called S-OIV. This is the real novelty of this epidemic, which, to be precise, should be called A/H1N1 virus influenza and S-OIV strain (Webby and Webster, 2003; Zimmer, 2009). Secondly, from its onset until September 15, 2009 it has caused the deaths of 137 people in Europe, and almost 4.000 worldwide, but the number of deaths in Europe is between 40,000 and 220,000 every year. Furthermore, unlike in other outbreaks, the population most at risk is not aged between 50 and 70, but between 25 and 49.

As a matter of fact, the reasons for the controversy are to be found elsewhere. Immediately after its onset, the new epidemic became a worldwide exceptional situation. It is worth mentioning that the US declared a “State of National Health Emergency” with only 20 infected people in the whole country, and although they had not yet reported deaths attributable to the new virus. Similarly, on April 29, 2009, only 12 days after the first two confirmed cases, Margaret Chan, the General Director of the WHO, increased the level of pandemic alert, declaring Phase 5 and calling on WHO member states to activate the emergency plans to respond to an influenza pandemic. A month later, on June 11, 2009, the WHO raised the pandemic alert to Phase 6. This was the official declaration of the first pandemic of the 21st century caused by the A/H1N1 S-OIV virus. From its onset, the new A influenza had entailed the emergence of an exceptional situation in our everyday life. First of all, due to its global condition and, secondly, due to the rapidity with which it acquired that condition (Cohen, 2010; Ebrahim et al., 2009).

Until 2009, the WHO considered an epidemic as global when three criteria were met: infection due to an infectious agent, simultaneity in different countries, and a significant mortality in relation to the proportion of the infected population. From that year on, the WHO reduced the weight of mortality in the definition (Parliamentary Assembly, 2010) and stated that, in order to declare a pandemic:

a) A new virus should appear, that has not been described yet, hence, with no existing immune population to it.
b) This virus should be able to produce severe cases of illness.
c) This virus should be able to spread effectively from person to person.

Moreover, the entity described phases for global application that serve as guide both for countries in preparing for a pandemic as well as for the declaration of a pandemic by the WHO (Fig. 1).

From the biomedical definitions it follows that the H1N1 influenza acquires its global condition (pandemic) when an antigenic strain develops its complexity as a consequence of genetic exchange between human, avian and swine strains (Domínguez et al., 2011). Among other features, it was considered as distinctive of this