



Institutions and their critics, or the habit of polarizing reality: the case of influenza A (H1N1)

Las instituciones y sus críticos o la costumbre de polarizar la realidad: el caso de la influenza A (H1N1)

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ABSTRACT The declaration of the influenza A (H1N1) epidemic in late April 2009 in Mexico was followed by a series of criticisms and to a lesser degree shows of support of the measures applied and of the manner of operation of the Mexican health system. In this text, I attempt to explain, using materials published in medical journals and in the Mexican press, the technical and ideological assumptions behind the work undertaken by the health sector as well as the assumptions behind the criticisms received. This exploration has two complementary objectives: first, to understand why the Mexican health sector acted the way it did; and second, to consider the technical legitimacy of the actions developed by the health sector and of the criticisms made regarding those actions.

KEY WORDS Influenza A Virus, H1N1 Subtype; Press; Scientific Communication and Diffusion; International Agencies; National Strategies; National Health Systems; Mexico.

RESUMEN Declarada a fines de abril de 2009 la epidemia de influenza A (H1N1) en México, se realizaron toda una serie de críticas y en menor grado de apoyos respecto de las medidas aplicadas y de la forma de operar del sector salud mexicano. En este texto trato de explicitar, a través de materiales publicados en revistas médicas y en la prensa mexicana, cuáles son los presupuestos técnicos e ideológicos con que trabajó el sector salud y cuáles son los manejados por los críticos. Esto se realiza con dos objetivos complementarios: primero, tratar de entender por qué actuó como actuó el sector salud mexicano y, segundo, para observar la legitimidad técnica de las acciones que desarrolló dicho sector y de las críticas que se hicieron a dichas acciones.

PALABRAS CLAVES Subtipo H1N1 del Virus de la Influenza A; Prensa; Comunicación y Divulgación Científica; Organismos Internacionales; Estrategias Nacionales; Sistemas Nacionales de Salud; México.

Near the end of April 2009, Mexico declared a health alert owing to the rise of a new strain of influenza that was showing epidemic characteristics and which, in a few days, would be called A (H1N1). The Mexican government and the health sector immediately put into action a number of preventive measures unprecedented in Mexico. Such measures meant the shutting down of schools at all three educational levels, cinemas, theaters, soccer stadiums, Catholic mass, restaurants and other service establishments for almost three weeks. The declaration of the epidemic; the supposed delay in informing the Mexican public, the World Health Organization (WHO) and its member countries; the high number of deaths incorrectly attributed to the new influenza; and the preventive measures themselves, were strongly criticized, largely by the mass media and to a lesser extent, by biomedical research studies, to the point at which it was possible to consider that the new pandemic did not exist but rather was merely a media event. Moreover, constant criticism was aimed at the way the official health sector informed the population, with accusations that the sector was hiding data, exaggerating the problem and driving an alarmist campaign for political and economic reasons. Criticism also stressed the lack of organization of the health sector, the lack of coordination between the federal and state levels, and the lack of planning regarding both the measures taken as well as the way the population was informed of the characteristics and consequences of the new influenza (1).

Facing this criticism, the Secretariat of Health, the WHO and the Pan-American Health Organization (PAHO) defended the actions taken by Mexico by way of technical arguments which gave rise to a strong polarization between those questioning and those supporting the measures taken by the Mexican health sector. These discussions involved public health professionals, high-ranking officials from the Mexican health sector and from international organizations, representatives of critical social medicine, and great variety of intellectuals whose opinions about issues – such as the new influenza – circulated through the press, especially during the first four weeks, issues that up to that point had not been of much interest to them, at least according to what can be gleaned from their publications (a).

METHODOLOGICAL ASPECTS

In this work I will attempt to put into evidence, through the use of material published by the press and Mexican medical journals, the technical and ideological assumptions employed by the health sector, and those employed by the critics. My work has two complementary objectives: firstly, to try to understand why the Mexican health sector acted the way it did and, secondly, to observe the technical legitimacy of the actions taken by the health sector and the criticisms of those actions. Our analysis is based on information on influenza A (H1N1) published by the newspapers *La Jornada* and *Reforma* between 2009 and 2013, and on specific material published by 28 Mexican biomedical journals between 2009 and 2012.

The study entailed carrying out the following activities: a) description and analysis of all the headlines and sublines appearing on the front pages of the newspapers *La Jornada* and *Reforma* between April 23, 2009 and May 18, 2009 regarding influenza A (H1N1); b) description and analysis of a sample of news articles by both newspapers about the new influenza published between April 23, 2009 and July 31, 2009; c) review of the information on influenza A (H1N1) published by *Reforma* and *La Jornada* between August 1, 2009 and July 31, 2013; d) collection of all articles on influenza A (H1N1) published on 28 Mexican biomedical journals between 2009 and 2011; e) review of two opinion magazines published between 2009 and 2011; and f) review of articles about influenza A (H1N1) published internationally between 2009 and 2013. In addition, we used material on influenza published between 2000 and 2008 in ten Mexican newspapers which was part of previous research. In this text, specific citations of the biomedical texts analyzed and the newspaper articles published by *La Jornada* and *Reforma* are given. This work is the product of a research study currently underway regarding the written press and influenza A (H1N1) (1).

WHY DID THE HEALTH SECTOR ACT THE WAY IT DID? SOME ASSUMPTIONS

Negative criticism and unconditional shows of support aside, we have to reflect on why the official health sector acted the way it did. That is, reflect not only on whether the actions were right or wrong, but also on the following: What was the technical and ideological rationality that guided the way it intervened? What was it seeking with these recommendations and actions? Why did it use alarmism, not only through social representations but also through practices which could have had – and indeed did have – severe economic and social consequences? Why did it continue to insist on the dangers and the need for prevention even once there was certainty of the mild severity of the virus in terms of mortality?

I consider that these and other questions can be answered through the material published in biomedical journals and, above all, through the opinions of the different social actors that appear in the media, that is, the Mexican health sector, the health sector of several countries and especially that of the US, the WHO and the PAHO, the critical public health professionals that acknowledge the existence of the problem and those who consider it as a fabrication, the pharmaceutical-chemical industry – which was implicated by that possible “fabrication” – and other social actors, including the Mexican government.

From the type of press material and biomedical journals we have consulted, we can define two groups of social actors through which we can analyze the assumptions held to confront, explain, criticize or defend the work undertaken by the health sector. Indeed, one group is formed by those who were in charge of dealing with the problem and solving it, which I will call *health sector*, and another group by those who questioned some aspects or radically distrusted not only the work undertaken, but also the very existence of the problem, which I will call *critics* (b).

In the case of the rationality applied by the official health sector, and especially the preventive sector, we have to highlight a whole series of assumptions that operate in a system of representations and technical practices which, for the most part – and I stress this – do not appear as

certainties but as possibilities. We assume that the theoretical and empirical presuppositions stated below constitute the basis for the work undertaken by the Mexican Secretariat of Health.

Since at least the 1980s, infectious and contagious diseases have taken on a new significance, not only in the peripheral countries, where they have always had prominence, but also in the developed world owing to HIV/AIDS and, more recently, with the resurgence of sexually transmitted diseases and bronchopulmonary tuberculosis. Furthermore, at the beginning of 2000, the WHO warned of the future danger of approximately thirty new infectious and contagious diseases that could develop worldwide, which began to be confirmed in 2002 and 2003 with the appearance of the Severe Acute Respiratory Syndrome (SARS), and between 2003 and 2005, when avian influenza became a primary global concern. We have also witnessed in several contexts the resurgence of cholera and yellow fever, and a notable spread of dengue fever, including the hemorrhagic strain. Epidemiologists foresee an alarming future, since global warming could increase the recurrence and spread of these diseases.

Influenza, in turn, is known to be “the most common respiratory viral infection in humans [...] it is the most pathogenic respiratory virus, so it poses a major problem for public health” (2 p. 196). It is also assumed that the new strains will be more lethal and resistant, and that it is difficult to predict when the new pandemic will occur since “once the influenza pandemics start, history has proven them to be uncontrollable” (3 p. 294). For this reason, the primary assumption possibly lies in the epidemiological expectation that at any time – though we do not know exactly when – a great lethal pandemic will occur, with historical reference to the so-called “Spanish Influenza,” but which feeds from more recent processes, such as those previously mentioned. Thus, in several articles of the analyzed newspapers, it is remarked in connection with influenza A (H1N1) that “when the new strain arose [...] in spring, experts feared that it could follow the pattern of the 1918 influenza, the most lethal epidemic in the world. This strain also appeared in spring as a relatively mild virus, but reappeared in a more lethal form in autumn” (4). It is even asserted that said pandemic,

which “caused the death of tens of millions of people, first appeared in a mild form and then reappeared six months later with a more lethal result” (5). But it is also noted that the appearance of the new virus “happened right at the moment when scientists were looking suspiciously at the changes in the behavior observed in another virus, the strain of avian influenza A (H5N1) in Egypt” (6), which is why the occurrence of the influenza A (H1N1) surprised not only the Mexican health sector, but also the principal international specialists.

Thus, this appraisal expressed not only the view of the media, but also what specialists of Mexico and other countries expected and continue to expect (7-16): “In his recent remarks [...] Dr. Lee Jong-Wook [...] warned all the attending Ministers of Health from the Americas [gathered in Washington, DC] of the risk of a threat with incalculable health, social and economic consequences, stating that ‘failure to take this threat [of a possible pandemic] seriously and prepare appropriately will have catastrophic consequences’” (17 p.1). For this reason, “PAHO/WHO authorities have exhorted the countries of the region to prepare for the possible emergence of a new strain of influenza capable of producing a pandemic” (17 p.1). One year before the outbreak of the Influenza A (H1N1), a key Mexican specialist maintained that “the scenarios presented here and international recommendations leave no room for doubt that we must continue to prepare ourselves to face the next pandemic [...] Taubenberger has stated in a number of forums that the clock of the pandemic is ticking but no one knows what hour it shows; there is no time to waste in light of this uncertainty, and the inevitability that it will occur” (18 p.290). Furthermore, once the epidemic caused by the new influenza broke out, and despite its low lethality, Mexican specialists concluded that “the risk of the development of a pandemic caused by the avian influenza virus is still latent. This pandemic [A (H1N1)] is likely serving as a simulation or trial for a pandemic caused by a more lethal virus” (19 p.73).

Between 2010 and 2013 the media and specialists continued informing of and investigating the possibilities of a severe pandemic which, during 2012 and 2013, was posed regarding influenza A-H7N9 and Middle East Respiratory

Syndrome Coronavirus (MERS-CoV). The effects of climate change raise concern as the possible cause of pandemics, and it is assumed that although it is possible to estimate what may occur in peripheral countries, and especially in Africa, it is not clear how to face the situation.

It is important to note that, when “abnormal” respiratory episodes occurred during March 2009, the Secretariat of Health was aware that “in the event of an influenza pandemic, 25 percent of the population could be affected, principally in developing countries whose health systems are still deficient” (20). What is more, days before declaring the epidemic, the Secretary of Health stated that an influenza epidemic “could cause up to one million deaths in only two or three months, so we have to be prepared” (21).

It was according to these assumptions “that Mexico started to prepare for a possible pandemic in 2003, with a response plan and a strategic stock of medicines, among other actions” (22). This plan was reported in the media at its inception and, in early November 2005, the Secretary of Health “informed that the president was recently presented with the National Preparation and Response Plan for an influenza pandemic” (23). The new president at the beginning of the next six-year presidential period affirmed that “Mexico is prepared to face an influenza pandemic” (24). The new Secretary of Health similarly affirmed in late December of that year that “Mexico is prepared in the event of an influenza epidemic outbreak” (25). He reiterated this in March 2009, stating that “Mexico has made a commitment with the WHO, so that at most 72 hours after identifying any case of fever of unknown origin, the national health system can provide information regarding the case and take the actions needed to avoid health disturbances” (20), as in 2007 all WHO member countries agreed that any new disease that could spread around the globe must be immediately reported to the international organization. That is, the Mexican political and technical authorities had agreed to the WHO regulations, and also maintained that Mexico was prepared to face a highly expected epidemic.

Epidemiologists hold technical assumptions regarding the time of the year when influenza occurs, as well as regarding the fact that every influenza pandemic is characterized by a series

of waves of increasing severity. And it was, in part, this last assumption which supported the continuity of the implementation of preventive measures, in spite of the drop in the number of cases that was being observed during June and July 2009. At different moments, national and foreign experts predicted a second wave, which would be "more severe than that of the previous months, as the new virus is threatening and unpredictable, warned Margaret Chan, Director-General of the WHO" (26), whereas a team from the Faculty of Sciences of the Universidad Nacional Autónoma de México (UNAM) stated that "the epidemic will reach its peak between next October and November, when the confirmed number of cases of Influenza A (H1N1) could double" (27). What is more, "according to a mathematical model of the WHO, if the A (H1N1) virus becomes pandemic, the world could face three waves of influenza, affecting more strongly the less developed and worst equipped countries. The impact of such a pandemic would be variable since a virus that causes only mild illness in some countries with robust health systems can become devastating in those countries with weak health care institutions and lack of medicines" (5). These consequences are confirmed by Mexican experts: "The experience with previous pandemics has taught us that second waves can be worse than first waves, causing more deaths due to the adaptation of the virus to grow efficiently in humans, and to the possible increase in virulence caused by mutations generated during its replication in humans" (28 p.23).

The potential danger of the new virus lies, on the one hand, in the lack of knowledge regarding several of its main characteristics, and, on the other, in the acknowledgement of the high contagiousness of swine influenza, and the fact that it is transmitted from person to person. Furthermore, "the concern of WHO and consulted experts is based on the fact that the virus in question, which has been identified as A (H1N1) strain, has unprecedented specific characteristics [...] with a gene mutation never found before" (29); which constituted an initially decisive fact, since the new influenza could not be differentiated clinically from the seasonal influenza. Furthermore, influenza viruses have certain characteristics that deeply concern specialists, such as the appearance approximately

every ten years of "a more aggressive mutation, and depending on the conditions, epidemic outbreaks, local epidemics or threats of pandemic like we are experiencing today can occur" (30). What is more, "influenza viruses mutate constantly and in an unpredictable way, therefore we can not discard the possibility of a more virulent and potentially antibiotic-resistant virus appearing," stated a WHO specialist (5). Indeed, "'we have every reason to be concerned about interactions of the new H1N1 virus with other viruses,' explained M. Chan, Director-General of the WHO. 'We must never forget that the H5N1 avian influenza virus is now firmly established in poultry in several countries. No one can say how this avian virus will behave when pressured by large numbers of people infected with the new H1N1 virus,' added Chan" (31).

Now then, specialists know that while type B and C influenza viruses are fairly stabilized and are unlikely to cause a lethal pandemic, type A influenza viruses are capable of producing a demographic catastrophe. Type A influenza viruses "are responsible for most epidemics, and are the only type that can cause pandemics" (32). It is a virus type characterized by permanent change; its genes constantly recombine, and "approximately in each human generation, a version of type A influenza residing in birds or swine combines its genes with a type of human influenza or acquires mutations that allow it to cross the species barrier" (8 p.25). According to the Secretariat of Health, the new virus turned out to be a "biological cocktail," with a combination of genetic material that had never been reported among influenza viruses known in the US or in any other part of the world. "The new viral variant, now known as 2009 Influenza A (H1N1), was immediately associated with a series of severe cases of atypical pneumonia occurring in our country since March, which led to the declaration of national emergency on April 23" (33 p.10). Although it was subsequently observed that the new virus had low lethality, the alert continued for several months because of – among other reasons – the speed at which the virus spread; while in the previous epidemics of 1918 and 1976 it had taken the virus more than six months to spread, it took the new virus only one month and a half, which further increased the epidemiologists' concern.

Certain characteristics of the new virus challenged the expectations of public health professionals, since the new virus was not expected to emerge during the months in which it appeared: "For this reason, weeks went by before physicians, epidemiologists and some epidemiological surveillance systems detected unusual behavior in the number and severity of acute respiratory diseases" (33 p.15). Neither was it expected that the greatest incidence would occur in older children and young adults, as for epidemiologists and clinicians "the populations most vulnerable to influenza are children under 5 and people over 65" (34). This assumption is so strong that those who were most affected during the whole period of the pandemic alert were never considered a risk group; only those groups already established as at risk by the empirical assumptions of the health sector continued to be considered as such.

Furthermore, the Secretariat of Health did not expect the epidemic to occur in Mexico. The fact that during the first weeks only Mexicans seemed to be dying despite the strong presence of the virus in countries such as the US has also had an impact. Furthermore, as we have already mentioned, the WHO, the PAHO, specialized global research centers, and not just Mexican specialists, expected an avian influenza epidemic instead of the influenza A (H1N1), which initially caused confusion and uncertainty: "It had always been thought that the origin of the pandemic would lie in a new human virus of avian origin, and that this virus would come from the Asian continent, since it was being affected by the A (H5N1) strain of the avian influenza which had already infected more than 450 people and had a lethality rate higher than 60%. Nevertheless, although international experts had such an expectation, the possibility that the new pandemic could emerge from other strains, as was the case of A (H1N1), was never discarded" (33,35 p.158).

We consider that – at least in part – the observations made by intellectuals and professionals in the Mexican press (c) seem to consider medical knowledge and the health sector in particular as eternal conspirators or as if this sector and the medical sciences had or should have an almost complete scientific certainty, when in fact, what prevails at the clinical as well

as epidemiological level, and especially in light of critical events like a new influenza, is uncertainty: "In the study of emergence or re-emergence of diseases there is always a factor of uncertainty, principally caused by the role of chance in the adaptive changes of infectious agents. Currently, the question regarding the possibility of influenza A (H1N1) becoming more virulent, as it did in the subsequent waves of the 1918 pandemic, remains open" (36 p.439).

As we know, chance is not the only element related to this uncertainty, but also medical knowledge itself, the characteristics of biomedical institutions, and the politico-economic and ideological processes in which context the epidemic appears and the medical institutions operate (37,38). Therefore, the health sector knows the difficulties medical knowledge has in the clinical identification and detection of the new influenza, but specialists also know about the limitations of the preventive measures to be applied, especially when there are no specific vaccines: "[Social distancing] measures will have limited effectiveness in stopping human infections once the pandemic begins, but they may be of use in helping to slow the pandemic's spread" (39 p.9). Although personal hygiene is a major factor in reducing the propagation of influenzas, "it is not known how effective this guidance would be in slowing the spread of a pandemic" (39 p.9). On the other hand, epidemiologists continue to discuss the usefulness of quarantines; while they were used successfully in several countries to "stop the spread of SARS," some specialists maintain "it is not clear how effective they will prove to be in the battle against swine flu [...] as in the case of China 'there's quite a bit of controversy about whether these methods actually helped,' states Dick Thompson, spokesman for the WHO" (40).

An almost determining factor in the way the Secretariat of Health and the WHO faced the epidemic was the fact that the virus was new and the most efficient preventive strategy was not available, that is, there was not initially a specific vaccine: "Experts are certain that the influenza pandemic will emerge at any time, and the problem is that only then, when the type of virus that causes the disease is known, will it be possible to develop a vaccine" (41). Since it was anticipated that the vaccine would only be available approximately

six months after the pandemic first broke out, this deficiency increased concern regarding the effects of the new influenza. Furthermore, the health sector knows, and does not ignore, the possible consequences of the administration of vaccines, especially the appearance of Guillain Barré Syndrome; it is also aware that once the vaccine is ready, it will be unequally distributed among rich and poor countries, since “the richest countries in the world dominate the supply of vaccines” (42 p.122).

The WHO, the PAHO and also the Mexican health sector are all aware of this: “Unfortunately, only a few countries have an industrial pharmaceutical capacity to manufacture this new vaccine on the required scale” (43 p.476). This author highlights that manufacturing companies have commitments and agreements with their own countries first, and then with other countries. Indeed, Mexican authorities expected to receive the vaccine before the beginning of the 2009-2010 winter season, and this expectation was not met.

The health sector assumes that vaccines should be administered to the groups considered at risk, the first of which is health personnel for two basic reasons: the health personnel that contract the disease may transmit it to their patients, especially to those who are most vulnerable; and also, new influenza can cause disability, absenteeism and contagion among colleagues. For this reason, as we will see later, the percentage of health personnel that refused to be vaccinated was noteworthy.

If we do not have a specific vaccine, the health sector assumes that at least we have some antivirals that have proven effective. Studies published in *Nature* (44) and *Science* (45) “suggest that if effective antivirals are rushed to the region in which a pandemic strain first emerges, coupled with certain public health measures, that it may be possible to contain it before it spreads worldwide” (39,46). Therefore, the WHO advised the countries with economic capacity to keep a stock of antivirals, and continued to advise them to do so in 2012 and 2013 in the light of the new viral threats.

Moreover, public health professionals know that the capacity of response to a new pandemic virus is limited, not only because of the lack of a specific vaccine and the limited effectiveness of

antivirals, but also because there is no capacity for care and hospitalization in the event of an epidemic: “The conclusion here is resounding: there is no country in the world with the hospital infrastructure and the staff required to attend to all the cases of influenza that could occur” (14 p.472, 18). But they also know that the economic investments of the Mexican health sector are neither directed to primary health care nor to the treatment of infectious and contagious diseases, but to tertiary health care and chronic degenerative diseases.

All the facts and assumptions here described motivated the WHO and the Secretary of Health to rally themselves and take immediate action, since “speed is important [...] time is pressing because the disease is spreading geographically, with three different foci in Mexico” (29). It is crucial to detect the cases early and take immediate action for curative and preventive reasons, because according to the director of the National Center for Epidemiological Surveillance and Disease Control (CEVANECE) [*Centro Nacional de Vigilancia Epidemiológica y Control de Enfermedades*] it is those treated within the first 48 hours who are most likely to recover. And according to the Director-General of the WHO, reducing the impact of the new influenza “will depend then on spotting an outbreak of human transmission quickly, and acting quickly” (39,46). For this reason, one of the main assumptions is that “actions must be taken,” regardless of whether the health sector has the necessary knowledge and means:

...we have to learn to face those risks despite all that we do not know [...] That means that we need to make decisions with knowledge and uncertainties of the scientific, technological and political order. For this reason, the need to apply the precautionary principle has been stressed in the field of environmental ethics for years. This principle states that the lack of certainty and scientific evidence regarding significant risks to health or the environment should not be an obstacle to putting into place precautionary measures that reduce risks and avoid possibly catastrophic consequences. In this regard, the precautionary measures taken in Mexico regarding the epidemic [...] were

adequate for the circumstances, when uncertainty was prevailing. (47 p. 205-206) [Own translation]

A large part of these assumptions and the measures they implied lead us to accept that not only possibilities but also doubts and uncertainties are part of every action/research process. Doubts and uncertainties are inherent to scientific and technical actions, especially when they are applied to immediate and potentially dangerous processes. What is more, epidemiological knowledge is unsure about the course the new virus will take, that is, whether it will cause a demographic catastrophe or become another seasonal virus with low lethality. And it is according to these doubts that incorrect measures may be taken: "In 1976, after a small outbreak of swine influenza in Fort Dix, New Jersey, US public health officials persuaded the president Gerald R. Ford and the Congress to conduct a national vaccination campaign which ended up being the target of widespread criticism. However, 60 years before, an influenza virus which apparently started with a moderate outbreak in spring, reappeared months later to wreak havoc," and the author wonders "what pattern will the influenza A (H1N1) follow? The only thing scientists can do is hope for the best and prepare for the worst" (6). The public health professionals that faced the new epidemic knew this then and they know this now.

Technical and scientific assumptions are not only theoretical assumptions, but also action guidelines that establish systems of expectations which are also subject to the evaluation and pressure that political power and businesspeople exert on the "decisions" of the health sector. This partly explains why authorities of the Secretariat of Health, despite accepting the possible existence of a new potentially lethal virus, decided to postpone – although for a short time – the national and international announcement that we were facing an epidemic caused by a new influenza – which, as we know, had already happened in Asian countries with SARS and avian influenza.

Along with these technical assumptions, there are a whole series of ideological assumptions imbued in the technical knowledge which appear to be decisive and of which to me the most significant are those "ideas and beliefs"

that the health sector and biomedicine tend to hold regarding the population. These ideas and beliefs show distrust regarding the ways subjects behave, particularly in terms of prevention of the diseases from which they suffer and/or by which they are threatened. What is more, they deem the population to be reluctant to engage in prevention, failing to consult physicians or doing so too late, even when they suffer from a severe disease (48 p.81), and tending to self-treat. Thus, for example, the Secretary of Health stated: "before April 17th, when the unusual growth in the number of cases of influenza was informed, patients had gone to hospitals only after 7 to 9 days of illness and with severe pneumonia symptoms. After that date, those affected began to go to the hospital 36 hours after the appearance of symptoms," and he added: "that delay explains the high number of deaths between the ages of 20 and 39 years, along with the fact that this sector of the population tends to self-treat using medications that should only be taken under medical prescription" (49).

In addition, the health sector assumes that even if people have the right information regarding influenza or "unwanted pregnancies," a part of the so-called "risk groups" do not take preventive measures. Moreover, they assume that the population relaxes preventive measures when they do not consider themselves to be in obvious danger, and, as stated above, that the population regards influenza as a mild cyclical condition they can self-treat. The name influenza evokes for them an ailment that returns year after year, with a level of danger far removed from severe conditions like HIV/AIDS, diabetes, or cancer. So for the population it is just another "flu"; they recognize the symptoms, and know that the effects only last for a few days and that there is a vaccine. They also know that the influenza can cause "complications" and even death. And they know this from experience, since most children suffer from influenza. The Mexican population has, in van Dijk's words (50), an "information schema" regarding the causes, symptoms, severity, duration, and what has to be done in terms of self-medication and prevention, and it is with this collective knowledge that the health sector must work. For the population, influenza is not a "rare" or abnormal disease, so the health sector has to turn it into a severe, different and

“abnormal” disease and try to create notions of risk and danger so as to assert influence over the population. The health sector must also alarm the population because the new influenza did not occur in an information vacuum, but rather in 2003 and 2005 the population had already been alerted to possible severe pandemics which did not have an impact in Mexico.

But the health sector also knows that different social sectors may oppose the preventive measures it will apply to face the pandemic: “One of the main obstacles faced in an influenza pandemic is the resistance of authorities from some sectors of government, as well as from other organizational levels” (15 p. 79). All pandemics will almost surely have economic consequences, and therefore, certain sectors of government and private companies may “resist” the application of some preventive measures. The health sector also knows that political opponents, critical intellectuals and alternative sectors will criticize and even oppose many of its actions, as in fact did occur.

Finally, we have to mention the assumptions the health sector holds regarding the media and the “alarmism” of which it was constantly accused. Thus, we have to accept what almost everybody acknowledges but which a part of the critics does not seem to accept in this case. We refer to the fact that the population is being increasingly bombarded by a constant mass of information it receives from different media sources, albeit traditional media related to word-of-mouth communication, “modern” media like the printed press, radio or television, or postmodern media outlets like the Internet and increasingly sophisticated “smart” phones. This fact is added to the presence of information in the street as we walk or ride in public transportation or in our own vehicles. This exposure to information makes it so that if a piece of news must be “present” and impose itself, for market reasons or for reasons related to the prevention of the new influenza, campaigns including not only alarmism – and its variations in the media – but also other media-based mechanisms to gain attention have to be developed, especially if the messages are meant to reach the maximum possible number of people in the shortest possible amount of time.

The official health sector needs, therefore, to involve the media in the dissemination of its

objectives, and not just in situations of epidemics. It tries to use the media although it knows that the media may modify and distort the technical and scientific information received, prioritizing the spreading of information over possible distortions. In the case of epidemics, the health sector tries to immediately make the best use of mass media, since they are, according to specialists, the principal means of spreading information. And this is what the Mexican health sector did, especially during the first four weeks.

This use of the media should even serve as a mechanism to influence the political decisions of the Executive power, which are related not only to the acknowledgement of the problem faced and the actions taken to solve it, but also to the possibility of assigning the health sector the financial and human resources that make real action possible. Obviously, these relational strategies with the media are not only promoted by the official health sector, but also by the other social actors and, especially, by the so called non-governmental organizations (NGO). The main media strategy “consists of a personalized and continuous relationship with the media, so that they receive and disseminate the information produced by a given institution, and also so that the media does not criticize – or criticizes as little as possible – the proposals and actions of these institutions” (38 p.61, 51) (d).

Therefore, the health sector acknowledges the importance of the media in spreading the information it wishes to circulate, and also has learned that the Internet can spread immediately – as never before – not only the information from the health sector, but also its concealments, distortions and mistakes. This means that individuals and groups can be publicly and almost instantly informed of the actions being taken, for example, by the health sector regarding the new influenza. For this reason the sector is almost forced to tell the truth, to acknowledge its mistakes and to engage in more transparent communication, which constitutes a new assumption for the health sector with respect to its course of action. As acknowledged in a recent study, the last epidemics have brought to light the systematic concealment of information on the part of national governments, despite international agreements regarding transparency; however, “since the SARS

outbreak, the world has seen substantial progress in transparency and rapid reporting” (53), as is known by the Mexican health sector.

There are two last assumptions which are more or less obvious. The first is that, according to the health sector, the management, the solution or at least the lessening of problems lies basically in biomedical knowledge and institutions. Although it acknowledges the importance of economic and political processes and actors, it considers that, whether or not resources suffice, it is biomedicine that can intervene most effectively. The second assumption is that the health sector acted the way it did because it was so planned by the WHO, the PAHO and the Mexican health sector itself, given that since 2005, in response to the avian influenza in 2003, the WHO has established rules and prepared documents to guide the actions to be taken in the event of an influenza pandemic (e).

In summary, we must accept that the Mexican health sector and its officials and experts, consciously and intentionally in most cases, worked with a series of technical and ideological assumptions which they applied systematically – and which included biases and mistakes as well as good decisions – because they considered the influenza a significant risk against which it was *necessary* to act despite their doubts and uncertainties. I consider that, based on the assumptions stated above, we can not only provide answers to many of the questions we raised initially, but we can also, above all, recognize the rationality employed by the health sector, aside from the accuracy or the error of their actions.

ASSUMPTIONS AND CERTAINTIES OF THE CRITICS

We can observe a second position with respect to the actions taken by the health sector, into which I will not delve particularly deeply, as most of its technical assumptions are, to some extent, shared by the critics. That is to say, critics, particularly those belonging to the biomedical field, have similar technical assumptions regarding a future catastrophic pandemic which is presumed to be the avian flu, as well as regarding the

characteristics of the type A influenza, the lack of a specific vaccine, the need for “isolation” and hygiene measures, or the role of antivirals. Therefore, I will focus on the differential assumptions this tendency holds (f).

This second tendency is dominated by distrust and doubt regarding the actions not only of the Mexican health sector, but also of the WHO. It questions unnecessary alarmism and the consequences of the recommendations and preventive interventions. Several of the article authors ask: Why do they insist on blowing the epidemic out of proportion? Why did they scare people? Why do they keep applying economically harmful policies even after learning of the mild severity of the new influenza? And, of course: Why are more Mexicans dying? This last question that was not only asked at the beginning of the epidemic, but also after the outbreak of 2011-2012.

I wish to stress that these questions and a large amount of the criticism have to do not only with empirical data, but also with the technoscientific assumptions and politico-ideological assumptions held by those who question the actions taken by the health sector, the Mexican government, and the WHO. That is to say, in these tendencies there is a strong distrust of the technical capabilities of the officials in charge of health policies, a fact that was evidenced, for example, through the derogatory comments made by the rector of the Universidad Nacional Autónoma de México (UNAM) regarding the Secretary of Health, whom he ironically accused of practicing magical medicine (g), a criticism which outlasted the epidemic. So, when analyzing the new outbreak of influenza A (H1N1) during the winter of 2011/2012 in which there was a high number of cases, a news commentator wrote: “Health authorities remain silent, while every week the number of severely ill and dead rises,” and, regarding the suggestion of the Secretariat of Health that a possible explanation was that 89% of the deceased were not vaccinated, added:

In that case, why have biological agents been massively purchased, if in three years they have not been sufficiently applied? Is this an admission that vaccination campaigns are failing? [...] In my opinion, the vaccination hypothesis is insufficient, as there are

countries with weaker health systems than that of Mexico which do not have such a noticeable presence of A (H1N1) [...] I hope the Secretariat of Health soon breaks its silence regarding this issue, which is so important to the health of Mexicans. (54) [Own translation]

These critics argue that the health sector, both at the National Secretariat level as well as at the state level, is headed by physicians who have no training in public health and have been appointed for political reasons. They also argue that the School of Public Health has not been training public health professionals but rather “so-called researchers.”

What predominates is not only distrust but also the lack of credibility of health sector officials and the government in general. Some critics have a baseline assumption that the sector is not only misinforming people but also hiding information, arguing that the Secretariat of Health spreads incorrect information with manipulative motives: “Since the authorities lack credibility, their incomplete and contradictory official statements are continuously challenged [...] Despite the number of the media and data transmission devices in existence, society is as ill-informed as it was 50 years ago” (55 p.71) (h).

Several authors argued that distrust and disbelief were present in every level of the Mexican society: “In Mexico there is a popular culture that does not believe the information that comes from government or science, but is willing to accept even the most unbelievable rumors” (47 p.212). However, and I reiterate, the distrust and the criticism is not only directed at the Mexican health system, but also at the WHO, which has been accused of lacking a global disease-fighting strategy capable of dealing with the current globalization processes (8,12), once again seen in the influenza A (H1N1) emergency. Beyond the criticism that may be formulated, we must acknowledge that the WHO and the regional offices planned and applied, in the case of influenza A (H1N1), a global action strategy. Recognizing this of course does not necessarily mean acknowledging its effectiveness, but rather questioning the assertion that there is a lack of planning globally.

The assumption is that what is happening is the result of neoliberal policies which

dismantled the institutions of the official health sector, especially the Mexican Institute of Social Security (IMSS) [*Instituto Mexicano del Seguro Social*]; and that investment, especially in primary healthcare, has been reduced. What occurred is largely attributed to the decentralization that has been applied in the health sector since the administration of Guillermo Soberón as Secretary of Health during the 1980s, and that has been reinforced by his successors, to the detriment of the efficiency and effectiveness of the Secretariat of Health. This strong assumption was especially put into evidence by the lack of information regarding the number of deaths registered in various states during the first weeks. This situation led the Secretariat of Health to send specialists to observe what was happening, and they detected that only four of the fifteen states studied complied with case notification regulations. The observers found “that following the orders of local Secretaries [of Health] or perhaps the governors themselves, those who compile the figures do not report deaths. ‘They shave off cases [...] The reports sent from the states answer to local interests. It is shameful, and worst of all is that since they are decentralized they have no accountability,’ complained one of the appointed doctors who wishes to remain anonymous” (58 p.25). The article adds: “The compiled results did not surprise the appointed doctors: they are the symptoms of a badly implemented decentralization of the health system, of which the national state has washed its hands, and whose operation depends of governors who are accountable to nobody. Prior to the [influenza] crisis they did as they pleased” (58 p.25).

The critics assume that the Mexican health system is characterized by frailty and vulnerability due to this decentralization, a consequence of neoliberal policies both in the health sector as well as in the politico-economic arena in general; burdens carried over from previous situations, like the eternal lack of funding of the official health sector; as well as frequent underspending in certain key areas. “The health emergency caused by human influenza exposed the feebleness of the national health system in successfully safeguarding the health of the population. Had the virus been of a higher lethality, it is unthinkable what costs to human life it would have caused” (59 p.1).

Now, the most common questioning indicates the distracting effect that the actions taken against the new influenza had in Mexico, since they took over as the main concern of the media, overshadowing information on organized crime and the consequences of the strong economic crisis which began in 2008 in Mexico and that would have in 2009 the lowest economic and occupational indicators. A whole series of articles refer to this distracting effect, even in political terms; articles that express, for the most part, the point of view of the columnists and authors, but also the opinion of the population. So, for instance, a 29 year-old woman reported to one of the newspapers that she thought "that the virus did not exist, and that it was only a political distraction to divert our attention away from things happening in the government," but clarified that "her perception changed" after she contracted influenza A (H1N1) and had to spend several days in the hospital (60).

For some analysts, this distracting effect might be related to the electoral campaigns that were to take place during the first trimester of 2009, when the Federal Electoral Institute (IFE) [*Instituto Federal Electoral*], and not the government, became the sole administrator of media airtime, in such a way that "even the government would lose the only communication tool it had" (61). For this reason, the government had to legitimize itself through other means so as to influence the public opinion, which it would have been able to do by using the new influenza. According to polls conducted by the enterprise Parametría, president Calderón had an approval rating of 74% among Mexicans in 2009, which made some analysts conclude "it is evident that the management of the health emergency gave the head of state a boost in his approval rating" (62 p.117).

Several journalists and public health professionals stressed the role of fear as a means to control the population, as an instrument with which to divert attention from issues such as poverty, unemployment and insecurity, as well as to legitimize the government of president Calderón, who "has made use of several communication and propaganda strategies with the objective of reaching the popular consensus necessary to legitimize his rise to power; these strategies have taken into consideration the use of high-impact government

actions, the management of moral panic and the use of a fear narrative" (62 p.71-72). An article reflecting on the constant threats imposed on us year after year by the WHO, the PAHO, the health sector and the media even proposes the existence of an "industry of pandemics." The use of fear as a tool for social control is one of the hypotheses of social scientists, and forms part of the critics' assumptions, however it would have to be shown that the population was indeed afraid.

In addition to the criticisms of the health sector, the consequences of neoliberal policies on the sector, and the distracting effects of actions to combat the new influenza, we find a fourth line of questioning regarding the increase in poverty conditions and in socio-economic inequalities in Mexico which would produce a larger impact in the morbidity and mortality rates among the low-income population in general, and in the poorer states in particular.

A fifth type of assumption is the one referring to the possibility of vaccines having negative consequences, based on the events following the type A influenza epidemic that took place in the United States in 1976 which caused hundreds of cases of Guillain-Barré syndrome, as well as the assumption that every vaccine needs a minimum amount of time for its quality and efficacy to be assured, whereas the one developed to fight the new influenza was made "in a rush." This distrust regarding the consequences of vaccination was made evident by refusals to receive the vaccination not so much in the general population but rather among health personnel. Based on the analyzed information published between April and July 2009, but most of all between August and December 2009 and during 2010, 2011 and 2012, it is evident that, in Mexico as well as in several other countries, part of the health personnel refused to get vaccinated, first against seasonal influenza and then particularly against influenza A (H1N1) once a specific vaccine was made available. They voiced several arguments, among them the side effects of the vaccines. In the case of Mexico, anti-vaccination behavior was not only noteworthy but also worrying, given that the Secretary of Health acknowledged on several occasions that during the epidemic only 60% of the health personnel was vaccinated against the new influenza.

The main reason given to refuse the vaccine was, as we indicated previously, “fear of side effects,” which can be observed in several parts of the country: “At least 2500 physicians of Nuevo León refuse vaccination against influenza A (H1N1), as well as 600 doctors of the Aurelio Valdivieso Civil Hospital in the capital of Oaxaca, due to fear of the side effects of the immunization” (63). This reaction is attributed to the news about the consequences of the health of some doctors, which was spread “through the Internet, for several weeks, in an attempt to claim that the vaccine was dangerous” (63).

It was said, for example, that in a physician the vaccine produced “Guillain-Barré syndrome, an autoimmune condition which produces swelling, muscle weakness, and paralysis” (63); the public health authorities responded that this was “completely false information to which the nursing and medical personnel was exposed through magazines and the Internet” (63). The Secretary of Health later indicated that “so far only one case of Guillain-Barré syndrome associated with the application of the vaccine has been confirmed, which is not rare, considering the fact that the disease is present in the country with or without vaccination” (64). It is important to reiterate that, in the journalistic material consulted in this work, the information regarding the rejection of the vaccine is concentrated around the health personnel, with very few references to rejections by the population.

However, the rejection of the vaccine by the Mexican health personnel is notable for two reasons: first, surveys of health personnel indicated that they were afraid of contracting influenza A (H1N1) (58,65); second, because despite the fact that the Secretariat of Health blamed rejection of the vaccine on the effect of internet rumors, even the most highly educated personnel decided against vaccination, according to certain more or less surprised specialists. And so, for example, in one of the most important Mexican centers for medical care and biomedical investigation – the National Nutrition Institute [*Instituto Nacional de la Nutrición*] – “it was not easy to get the health personnel vaccinated, since the rumors instilled fear even in members with high levels of formal education. And despite information and dissemination campaigns on safety, it was

not possible to increase the vaccination rate” (3 p.295).

Although the rejection of the vaccine was mostly generated through the Internet (i), the Secretary of Health said: “we were able to counter it effectively. We carried out a survey that indicated that 86% of people trust the vaccine.” And he reiterated the quality of the antigen: “of the 169 adverse reactions have been reported, 101 correspond to the vaccine against the new flu, and none have been serious” (66). Nevertheless, the sense of distrust continued throughout the first months of 2010, and was put into words by a Senator of the Democratic Revolution Party (PRD) [*Partido de la Revolución Democrática*] and member of the Health Commission of the Senate of the Republic, who said that “he did not get vaccinated against influenza A (H1N1) because he did not trust the vaccine, and neither do the Mexican people” (66).

I believe it is important to stress that part of the health personnel refused the vaccine not only in Mexico, but also in the United States, Spain, Germany and other European and Latin American countries, which implies that there is distrust among the personnel in charge of the specific preventive measures. In the case of Spain, between 60% and 70% of the health personnel did not get vaccinated, which led the Spanish public health authorities to threaten, in September of 2011, the imposition of economic sanctions on health professionals that refused vaccination against the new influenza.

The reasons given to refuse vaccination are not recent; they are in fact rather longstanding, which led to the formation in several countries of a true anti-vaccination movement among physicians and laypeople (67). This had a short-lived presence in the Mexican media through the broadcasting of a video made by the physician and Benedictine nun Teresa Forcades, who “questions the effectiveness and safety of the vaccine and encourages people to reject it” (68), according to an assessment made two years after the impact of the epidemic and which indicates that Forcades’ thesis “generated controversy among epidemiologists and virologists,” going on to say that “the nun had her moment of glory, around the end of November 2009 in Barcelona, when she led the closing ceremony of the second

Congress of Science and Spirit [*Congreso de Ciencia y Espíritu*]. This Congress brought together conspiracy theorists, mystics, Bible scholars of the quantum era, as well as nature spirit visionaries and extraterrestrial masters” (68).

As we can see, in this account Forcades ceases to be a physician and is attacked as a nun, implying mystic and paranoid inclinations. But beyond these derogatory references, what I would like to stress is that not only the rejection but also the technical and politico-economic questioning of vaccination are part of the assumptions of a large sector of intellectual critics as well as health personnel, critical or not.

It seems to me that most of the critics’ assumptions – at least in the journalistic and biomedical material consulted in this research – operated in relation to the previously mentioned aspects, although I also found assumptions regarding other processes, albeit with less representation both in the press and in biomedical journals. One of them refers to the possible origin of the virus being the new methods for the production of pork, reinforced by the fact that the first confirmed case in Mexico was detected in a town close to one of the main pork producing facilities located in Perote (Veracruz) – Carroll Farms – and also by the fact that since 2007 the inhabitants of the communities at Perote have been denouncing the contamination generated by those farms, leading researchers to carry out studies that show an increase in acute respiratory diseases among this population. Within the epidemiological field people had been commenting that these new methods of production, especially of poultry and pork, constituted a fertile ground for the rise of new diseases, a hypothesis that indeed had been proposed a few years before as one of the possible causes of the avian flu epidemic.

According to some critics, studies performed between 1976 and 1989 showed that pigs in the United States were often infected with the H1N1 virus, but very rarely with the human virus H3 or the avian virus H1; moreover, between September 1997 and August 1998, 26 influenza viruses in pigs were isolated in the center and north of the United States, and all these samples were of the H1N1 virus. A scientific commission of Johns Hopkins University warned of the health hazard this type of exploitation posed. It

is therefore important to mention that the journal *Salud Pública de México* near the end of 2009 published an article by Charles W. Schmidt (69) which analyzes the role of the pork industry in the United States and other countries in the inception and spread of new influenzas. Schmidt indicates that, despite these accusations, the pork industry “fall[s] through regulatory cracks when it comes to sampling for novel viruses that could make people sick” and adds that influenzas “aren’t included on a list of 150 ‘reportable illnesses’ that, when detected, must be documented with the World Organisation for Animal Health (OIE). [...] Novel H1N1 is also not required to be reported to OIE” (69 p.515-516).

Moreover, Schmidt adds that the lack of regulations is due in great part to the lack research studies showing the role of the pork industry in a series of environmental and human problems which, according to Robert Martin of Washington DC-based environmental group Pew, is largely owing to the collusion of industry and researchers. Martin states that “even the best scientists seem loathe to say anything against the industry,” because “with the decline in public research funding, it’s industrial animal agriculture that pays for virtually all the animal sciences research going on at land-grant universities today.” He concludes that “the research is biased to generate more industry profit. Many academic researchers are concerned about alienating their primary source of research dollars – i.e., the industrial animal sector – and that makes them leery of looking at industry problems with an open mind” (69 p.521). I stress that this work was published by *Salud Pública de México*, but without any commentary in that issue or any other issue of the journal; moreover I did not find any scientific article published by Mexican biomedical journals regarding this topic and the press did not report any concerns of the health sector regarding these possibilities, much less about the university research/pork industry collusion. According to the press, the only thing that seems to concern the health sector and the government are the economic consequences of the new influenza for the pork industry, and not the possible influence of the pork industry in the inception of influenza A (H1N1). I did not observe any information regarding the need for regulations or the taking of samples, and I was also unable to

find any information regarding regulations for the soft drink, alcohol or fast food industries.

Schmidt's arguments relate to one of the consequences of the pandemic A (H1N1), and I refer to complaints about the ever-growing relationships between universities, researchers, high-level officials, the pharmaceutical-chemical industry, the WHO, and the health sector. These relationships are made evident in complementary ways ranging from the fact that a large amount of the funding for chemical research in American universities comes from the pharmaceutical-chemical industry to the fact that more and more WHO high officials and consultants have worked or are currently working for this industry, which, in turn, pressures official and private medical institutions in different ways to buy certain medicines. However, this type of information was not present in the Mexican medical journals included in the corpus of this work, and while there are references in the Mexican press, such references are comparatively rare, although they not only indicated the main aspects of the problem, but they actually put it into evidence starting from the very first days after the declaration of the epidemic in Mexico. So, in a headline from April 23, 2009, *La Jornada* reports: "Pharmaceutical shares rise," and indicates that "the threat of the pandemic of a new strain of flu which has taken the life of over 100 people in Mexico will be a relief for medicine and vaccine manufacturers. The Swiss Roche Holding AG and the British GlaxoSmithKline plc are the two largest pharmaceutical groups that can look forward to reaping the largest benefit from the situation, as governments and corporations order their Tamiflu and Relenza medicines" (70). The article goes on to report that the shares of both companies have risen, in response to which Jeff Holford, bank operation analyst, states that "there is certainly a perceived benefit and there probably will be some actual benefit, but not as much as the first time around with the avian flu" (70).

The press also reported on antivirals and the relationships of the government with pharmaceutical-chemical companies. In June 2010, *La Jornada* reported that the *British Medical Journal* had published articles in 2009 which showed that Roche laboratories had provided incomplete information on the antivirals they

produce and hid their adverse effects, concluding that: "that neither their safety nor effectiveness can be assured" (71) and demanding that Roche make the information they have on those side effects public, while at the same time requesting that the European governments sue Roche. As we know, in 2010, the WHO added Tamiflu to the list of essential medicines to treat influenza.

Moreover, we noted the health authorities' urgent demand for a new specific vaccine, a task to which several companies committed themselves as they rediscovered a new economic possibility that many other companies had forgone: "In the midst of the concern over the threat of an influenza epidemic, three large pharmaceutical companies announced acquisitions yesterday which give them rights over the new flu vaccines [...] The wave of transactions reflects the conviction of the pharmaceutical companies' executives that vaccines against a multitude of ills will become a more important source of growth. Laboratories need to find new sources of income to replace successful medicines whose patents are near their expiration dates in the United States" (72). It is important to remember that vaccines cannot become generic, as happens with other medicines.

There is no doubt that a business based on illness and care/prevention exists which, in the case of the new influenza, requires urgency in researching, designing and producing the vaccines demanded by the public health authorities of most countries and by the WHO – a business controlled by private companies, which are largely subsidized by the governments. So, for instance, the company Novartis "received 289 million dollars from the Department of Health of the United States to ensure the development of clinical studies and the production of a vaccine against influenza" (73).

The pharmaceutical-chemical companies try to establish relations with different countries so as to place their products and, as an analyst indicates: "the competition among vaccine manufacturing laboratories [...] had a clear winner in the Mexican market. The government bought 30 million vaccines for influenza A (H1N1) from the laboratories Sanofi Pasteur and GlaxoSmithKline, but Sanofi received the largest benefit, given that as of 2004 they have a signed agreement with the federal government regarding research and development for the production of vaccines in the

country in the event of an influenza epidemic" (74 p.72). Although everything indicates that the administration of Felipe Calderón miscalculated "the figures regarding the permanence and severity of the influenza A (H1N1)" and that is why they "signed a contract for 15 years to buy vaccines from the laboratory Sanofi Pasteur, an unjustified length of time, according to the analysis of the Federal Superior Auditor's Office [*Auditoría Superior de la Federación*]" (75).

This is the national and international framework in which the chairman of the Health Committee of the Parliamentary Assembly of the Council of Europe, epidemiologist Wolfgang Wodarg, requested on January 12, 2010 that the WHO explain why the pandemic of influenza A (H1N1) was declared when its lethality was minimal, even lower than that of seasonal flu, and also denounced a group of people that work for the WHO as being closely associated with the pharmaceutical-chemical industry (76).

He considered that "the declaration of the pandemic and the urgent call for the production of a vaccine had the objective of benefiting the pharmaceutical laboratories" (77), after which the WHO "accepted submitting their procedures to the scrutiny of an external review commission and promised to reveal the results" (77).

That same day, the WHO reaffirmed that the pandemic was real, as up to that point there were more than 13 thousand confirmed deaths, stating "we have not exaggerated or underestimated the situation or the effects of the pandemic," and also "rejected outright having been 'influenced by commercial interests'" (78). Furthermore, the WHO would continue to deny the accusations, proposing the creation of a commission of external experts to evaluate its performance in dealing with the pandemic (79).

The discussion centered around three aspects: the influence of the pharmaceutical-chemical companies in the decisions of the WHO, whether an A (H1N1) pandemic really existed, and the possible negative consequences of vaccination; but given that the latter was already discussed, we will focus on the first two aspects. During the first half of 2010, the press kept reporting on these aspects and, especially, on the team that would evaluate the actions of the WHO, given that accusations would damage the WHO's image not

only with the scientific community but also with the population, who might "reject the vaccine and endanger their health and their lives, said the vice president of the Health Committee of the Council of Europe" (79). However, criticism was leveled not only at the WHO, but also at the agencies and European governments which were accused of "exaggerating the public health risks of the influenza A (H1N1), and making decisions in secret which benefited the pharmaceutical companies" (80).

However, both the criticisms and the defenses continued: a "text elaborated by the *British Medical Journal* and the Bureau of Investigative Journalism [...] questions the secrecy surrounding the identity of the members of the council which a year ago recommended declaring the first pandemic of the century due to influenza A (H1N1)" (81). This research study found that three of the experts who elaborated an action plan in the case of a possible pandemic of influenza had economic ties to the pharmaceutical-chemical industry, and that other researchers who recommended the use of antivirals to face the epidemic also received money from the manufacturing companies of these drugs. Despite that "the WHO did not reveal these conflicts of interests [...] The report also questions the secrecy regarding the influenza experts who formed the Emergency Group that recommended the Director-General of the WHO to declare, on June 11, 2009, the influenza A (H1N1) pandemic" (81,82). This led the WHO to make, on August 11, 2010, the names of the fifteen members of the Emergency Committee public. It was thereby confirmed that five of these experts "were paid by the industry, but the WHO stressed that at no point were there any conflicts of interests which would affect the autonomy of the specialists" (81).

In Mexico, opinions were divided; on the one hand, the Secretary of Health "rejected the criticism the European Community made against the WHO regarding the exaggeration of the response against the influenza A (H1N1) pandemic and denied that pharmaceutical companies pressured Mexico into acquiring vaccines [...] He considered that there were no grounds to say that the WHO exaggerated when the corresponding regulations had been approved since 2005 and, in that sense, the steps of the care and prevention plan for the pandemic were those that every country in the world had

established" (83). He emphasized that "we were not pressured by the laboratories," and that the criticism was possibly due to the fact that "some countries acquired not 100 percent, but rather 200 percent" (83). Whenever there are problems, especially economic problems, as in this case, buying double the number of vaccines and then not being able to use them creates certain discomfort and criticism, but that is another matter. The Secretary of Health had stressed that the steps followed were the steps all member countries of the WHO had agreed upon: "I don't know why now some believe they have been tricked, when it was their own experts who took part in the creation of the regulations for the steps outlined in the case of a pandemic" (83).

Conversely, Asa Cristina Laurel, Health Secretary of the "legitimate government" of Andres Manuel López Obrador (j), "said that one of the main consultants of the WHO, doctor Albert Osterhaus, is clearly associated with pharmaceutical laboratories [...] Osterhaus supported the declaration of the pandemic and the urgency of producing the vaccine. The problem with this man, nicknamed *Dr. Flu*, is that there are clues pointing to the relationship he has with the pharmaceutical laboratories" (77).

Research studies and considerations of the role of the pharmaceutical-chemical industry and its relationships with the official and private health sectors, the WHO and the universities have a long history, as do the role of high-level officials in these type of corrupt relationships. This industry uses every means available to push its products, and is the main supporter of what is known as "disease mongering" (84,85). We need to recognize that "Big Pharma [...] is the most profitable industry in the USA and the most powerful lobby on Capitol Hill. According to Marcia Angell, of Harvard Medical School, the ten biggest pharmaceutical companies – which are among the Fortune 500 of 2006 – receive more benefits than all the other 490 companies" (8 p.161). The pharmaceutical-chemical industry employs any tactic at its disposal, especially corruption, so, for instance, the company GlaxoSmithKline plc has been investigated by the US Department of Justice for allegedly illegal marketing of their antidepressants and other medicines. In 2012, the company admitted to having carried out illegal marketing, as

well as hiding biosecurity data from US regulatory bodies, for which it had to pay three billion dollars, "an amount that the Department of Justice deemed to be the largest settlement for health fraud in the history of the USA." Nevertheless, the company continues to face other accusations, as its frauds continue both within and outside the USA (86).

In the case of Mexico, not only during this epidemic, but especially during the bird flu epidemic, the health sector was accused of unnecessarily buying large quantities of antivirals (38). And, in the case of the WHO, some of the strongest criticism was and still is directed at the changes made to the definition of pandemic in May 2009 which helped the WHO to turn, in June of this year, the influenza A (H1N1) outbreak into a pandemic. To that end, the WHO removed as a requirement for the declaration of a pandemic the existence of the mortality of a large part of the population so as to be able to establish a phase 6 alert. Before this modification, in order to be able to declare a pandemic there had to be a mortality rate higher than the average mortality rate caused by the seasonal influenza, which in the case of influenza A (H1N1) did not happen. According to Forcades, this change in the regulations "allow[s] so-called 'pandemic vaccines' to be patented and the companies holding these patents to negotiate binding pre-contracts with the governments of WHO member countries, at monopoly prices and with as many secret clauses as deemed fit. These pre-contracts come into effect automatically the moment a phase 6 global pandemic alert is declared" (87 p.246).

Now, these facts and interpretations must be analyzed within a particular context, in which the relationships of this industry with Mexican biomedicine are characterized by a suspicion that everyone seems to have but no one researches. And so, a renowned researcher from the National Institute of Respiratory Disease (INER) [*Instituto Nacional de Enfermedades Respiratorias*] poses, as an important area for journalistic investigation, the "possible cases of corruption that may exist in Mexico with pharmaceutical companies. It is clear that certain clinics tend to use drugs of a certain pharmaceutical company more widely," and he asks himself: "Has there been any journalistic research which has documented or refuted that rumor, so present among physicians and health

institutions?" (88 p.7). It is important to indicate that these processes are not "researched" by journalists, as the author indicates critically, but they are also not studied by researchers, critical or not. However, strong assumptions exist regarding the ways the pharmaceutical-chemical industry acts and its economic relationships with the health sector, the WHO and researchers (k).

Another assumption, employed both by the health sector and the critics, refers to scientific research and the pharmaceutical-chemical industry, and has to do with the fact that the viruses "invented" or redesigned by the researchers, whether intentionally or through human error, have serious consequences for health, even at a pandemic level. This expectation appears multiple times in the press and in scientific publications: "The journals *Nature* and *Science* published the names of the scientists of an international group which will induce controlled changes on the avian flu virus H7N9 hoping to create an efficient vaccine to combat the strain, as well as to learn if its transmission to other organisms is possible." The article continues: "The researchers emphasize that all this will be done under the most extreme scientific biosecurity protocols and the possible risks arising from the handling of virus will be kept to a minimum" (89). A group of twenty-two scientists headed by Ron Fouchier will create mutations of the virus A-H7N9 to increase its virulence, so as to generate biological agents that make it possible to fight serious pandemics. The researchers believe that nature is the biggest threat, and not what they do in the laboratory, since they work under the highest biosecurity levels possible (90).

However, while these researchers perform this type of studies believing they control all possible risks, critics argue that a large part of the risks created by these research studies cannot be controlled.

Finally, there are assumptions which at least a part of the critics hold regarding the mass media and its use by the health sector, which include the accusation that the Mexican health sector lacked a planned communication policy regarding the new influenza. Communication specialists, anthropologists and researchers of the medical field accused the media of twisting reality

and providing incorrect and biased facts (91,92), questioning not only the alarmist uses of language but also the slant. In previous works (38,93) I reviewed the opinion the critics have of the media, which may be summarized in the following statements: a) they twist the facts, including what social actors do and say; b) they hide information, slant the information obtained, misinform more than inform; c) they have a tendency not only towards alarmism and sensationalism but also towards catastrophism; d) they try to present the information as a spectacle and in a sensationalist way, so that every day there is more information but we do not know what it means; e) they stigmatize and exclude certain social actors; f) the information is characterized by its focus on the present and ahistoricity, concerned only with "novelties"; g) the information is unintelligible and, often, chaotic; h) the media do not include the structural causes of the processes they report on, but rather try to hide such causes; i) they do not present contextual data regarding the place in which the facts they report on happen; j) they express economic and political interests; k) they try to divert the eyes of the public away from the serious, structural and immediate problems, and direct them to secondary problems; l) the information is characterized by its uniformity.

Moreover, the majority of the critics believe that the media are all-powerful, and even for authors that hold Baudrillard's ideology (94), the media are the current creators of "reality."

This reading of the media was paradigmatically expressed during the outbreak of the new influenza through the statements of Mark Siegel, professor at the New York University School of Medicine. In a text disseminated widely throughout the world and especially in Mexico, he argues that although the measures taken by the Mexican health sector were generally correct (95 p.9), given the low lethality of the new virus, the way of informing the public was largely alarmist. He denounces the way in which the health sector and the media exaggerated the problem and comes to the conclusion that the strongest virus was not the flu, but rather the fear induced by the media. For Siegel, as well as many other critics, it was above all a media pandemic.

SOME ARTICULATING REFLECTIONS

There is no doubt that many of the assumptions of the health sector are correct, as are many of the assumptions of the critics, like those which refer to the effect of the neoliberal policies in the dismantling of certain basic institutions of the Mexican health sector, especially the Mexican Institute of Social Security, the disappearance of national laboratories of biological products, as well as the negative effects of the decentralization that contributed to reduce the effectiveness of the official health sector. Other factors that had and still have a negative effect are the increase in the poverty levels and socio-economic inequalities, as well as the effect of corruption at local government level, and the “dangerous relationships” between the pharmaceutical-chemical industry, researchers and health institutions. However, other assumptions of the critics are dubious or simply incorrect, like those referred to the little consequences of the influenza A (H1N1) in terms of morbidity and mortality, the negative effects of the vaccine, the alleged role played by the fear generated by the health sector, the lack of techno-scientific aptitude of the health care team that planned and acted against the new influenza or the lack of a communication strategy (1).

In the technical and ideological assumptions stated above, the techno-ideological rationality applied by the Mexican health sector is established, especially if we regard uncertainty as an essential part of that rationality. Therefore, the actions taken by the health sector, regardless of their efficiency, are part of a techno-ideological way of thinking and acting in response to a pandemic emergency, which cannot be wholly discredited due to errors, omissions, corrupt collusions, or collusions of any other type, but which should be understood as a whole and situationally before formulating criticism. From this perspective, a great number of assumptions in terms of the epidemiological rationality applied are legitimate not only among the health sector, but also among of the critics, although fundamentally in economic and political terms, since part of their technical as well as some of their economic and political questionings do not withstand comparisons with empirical data.

We refer, for example, to assumptions and assertions on the role of the swine farms in the appearance of the new virus in Mexico, to the lack of a planned communication strategy to face influenza A (H1N1), to the negative consequences of vaccines, and, especially, to considering the new epidemic as exclusively media-related given the limited impact it may have had in mortality, which, as we know, was the central point of the criticism.

Several studies have revealed that the health sector employed a planned risk communication strategy (96,97), but above all statistical information has shown that mortality due to the new influenza was much higher than what was indicated by the critics and even higher than what was estimated by the WHO. According to the WHO there might have been 18,400 deaths attributed to the new influenza, but in mid-2012 *The Lancet* published an article (98) in which authors review worldwide data and conclude that during that time period, between 151,700 and 575,400 people died due to the A (H1N1) pandemic, 51% of which were in Asia and Africa. This information radically puts into question the arguments that considered the pandemic a mere media creation related to the WHO and the Mexican health sector. Not only have the critics once again hastened to criticize, but the fact that they reduced their interpretations to statistical data from Mexico and the “western world” evidences their obvious ethnocentrism.

This higher than expected impact evidences what the WHO, the Mexican health sector and also the critics had coincidentally suggested: that the new influenza would have its principal impact in terms of mortality in those countries with health systems characterized by their debility and lack of resources. Therefore, what happened with the health systems of African and Asian countries legitimizes the predictions of the WHO, not for a single country but for a globalized pandemic which, in terms of health-disease-care-prevention processes (HDCP processes), tends to affect primarily the poorer countries with less medical and health care infrastructure. What influenza A (H1N1) evidenced once more is that the HDCP processes usually act as spies into the contradictions of a social system or of a health care technical apparatus but also, as in this case, of their critics (1).

As often happens, in light of the actions taken against influenza A (H1N1) different points of view are expressed by the social actors involved (37). These actors, based on similar epidemiological assumptions, suggest different interpretations regarding the HDCP processes triggered by the emergency and the spread of the new influenza and, especially, regarding the way the health sector acted. The emergence of different points of view is not only normal but also necessary; on the one hand such difference expresses uncertainty and doubts regarding the scientific approach, while, on the other hand, it evidences the politico-economic and cultural-ideological dimensions of knowledge processes. Such processes tend not only to act but also intervene directly in social reality, regardless of how technical and scientific their proposals and actions are. All knowledge is ideologized and politicized, at least at the moment of its application and intervention.

Faced with the existence of different and even opposed interpretations, we can – from a scientific and/or knowledge perspective – adopt different positions. The first position, which until recent times was dominant in some intellectual spheres, refers to the post-structuralist and Foucaultian proposals which assume expressly or implicitly that in every significant process there are different points of view, such that the problem of considering “the” truth is secondary, since the truth is only a result of *power*. Therefore, in the case of influenza A (H1N1), “the” truth is imposed by the WHO, the Secretariat of Health, the pharmaceutical-chemical industry and other actors involved in the application of this truth. That is, we are not only facing gnoseological relativism, but also an exclusion of the transactional processes that include the subordinate and non-subordinate sectors in the development of “resistances” and, especially, in the development of counter-hegemonic actions and proposals, regardless of whether *power* imposes itself.

A second possibility would be to acknowledge the existence of different and even contradictory points of view, whose differentiation lies basically in the economic and political dimension and, to a lesser extent, in the ideological dimension, leading to conclusions similar to those of the previous proposal, since the conception with a greater political and economic power represented

by the social actors mentioned above would be imposed. Although this tendency does not deny the matter of truth, or set it out in relativistic terms, its conclusions are similar to the previous one (m).

There is a third possibility – and there are obviously others – which acknowledges that although “the” truth tends to be constructed and imposed in terms of power, in economic and political terms or in terms of knowledge, it does not exclude the need and the possibility to find true explanations – or at least truer – of the process or problem posed. Moreover, it questions reducing “truth” to power, economic and political or knowledge-related dimensions, proposing an analysis of the specific processes with respect to the present situation but also throughout a historical period which makes it possible to analyze the tendencies that took place not only regarding the assumptions of the different social actors but also the transactions that take place among them. And, obviously, reality should not be reduced exclusively to the point of view – or, if you prefer, to the power – of only one of the social actors.

A great part of the assumptions employed by the Mexican health sector are true, as are a great part of the assumptions held by the critics; but regardless of the role played by the economic interests of the pharmaceutical-chemical industry or the political objectives of the Mexican government, we observe that the health sector not only acted with technical rationality but also had as a main objective the reduction of the negative effects in terms of morbidity and mortality of the new influenza, which, as we know, constitutes its specific objective. These statements do not ignore that on top this primary objective – as always or at least frequently occurs – economic, political and ideological objectives of the abovementioned social actors have been added, actors that include the health sector itself, which – as we have persistently analyzed – constitutes an inherent part of the functions of the Hegemonic Medical Model (HMM) (99,100). For this reason, from our methodological perspective (37,101), we consider it necessary not only to take into account the structure and the functions of the HMM in order to explain the rationality employed by the WHO and the Mexican health sector, but also to try to analyze the processes in terms

of contradictory and controversial articulations, which are also complementary and not simply polarized oppositions. These articulations may make it possible to detect “truth effects,” but without accessing the truth of the processes we try to understand and possibly modify.

From this perspective, doubts and uncertainties are an essential part of the epidemiological rationality, given the need of the health sector to act in epidemic processes. And this “discovery,” along with the inclusion of the characteristics and functions of the HMM, is precisely part of that truth.

ENDNOTES

a. Between April 24, 2009 and June 31, 2009, 179 articles authored by prominent Mexican intellectuals were published by the newspapers *La Jornada* and *Reforma*.

b. Although I propose two groups, I consider there to be a range of intermediate possibilities, as revealed in our analysis of the journalistic and biomedical information about influenza A (H1N1) (1). Both groups are formed as follows: *health sector*: Secretary of Health, senior officials of the WHO and the PAHO, Mexican experts on infectious and contagious diseases, the Mexican president; *critics*: Mexican and foreign critical biomedical analysts, Mexican intellectuals, politicians opposed to the government, media experts, social scientists specialized in health-disease-care-prevention processes. Let me clarify that within both groups there are different orientations but, for the purposes of this study, that is secondary and irrelevant.

c. See the articles published in *La Jornada* and *Reforma* between April, 24 and July, 31 of 2009.

d. In addition, these policies can fabricate epidemics, or at least exaggerate problems, as was the case of a crack epidemic widely disseminated in an alarmist way by the media and specialized Brazilian agencies. A study (52) later revealed that this epidemic did not exist and concluded that such epidemic alarmism possibly sought to obtain more resources for anti-drug activities.

e. Starting in 1999, the WHO created documents which were reviewed and updated according to the new experiences, as occurred in 2005 and 2009.

f. In our analysis of the articles published by *La Jornada* and *Reforma*, we observed that 72.5% of those articles criticize the Mexican health sector, while 47% note positive aspects. In the case of the 156 headlines that both newspapers published between April 22, 2009 and May 18, 2009, we found 19 critical headlines and 3 supporting the health sector (1). Criticism leveled at the health sector is much rarer in Mexican biomedical journals than in the written press; in the latter articles appear referring to American and European research studies and publications which question the actions of the WHO and the health sector that were not present in the Mexican biomedical publications, despite coming from well-known scientific journals.

g. The rector of the UNAM mocked the Secretary of Health of Mexico after a press conference in which the Secretary criticized the use of neckties, touting them to be a virus reservoir.

h. A study on the faculty and students of the Universidad de Guadalajara concluded that the participants of the study distrusted the information propagated by the authorities and the media (56). A study carried out among the faculty and students at UNAM found that 23% of those interviewed said the new virus was the product of political manipulation or a fraud, while 17% thought it was the product of genetic engineering and human intervention (57).

i. The role of the Internet in the spread of negative rumors has been documented in several countries and, especially, in the United States; a research study noted a high rate of correlation among negative messages, geographical area and vaccination coverage (53).

j. Andres Manuel López Obrador (also known as AMLO) was a candidate for the presidency of Mexico supported by the Democratic Revolution Party, who lost in the elections due to the notorious fraud perpetrated in favor of the candidate for the National Action Party. AMLO kept, for several years, a parallel cabinet, of which Cristina Laurell was part.

k. The press reports some critical aspects, regarding for example the pharmaceutical-chemical industry, which do not appear in Mexican medical journals. Even when well-regarded researchers denounce the role of the industry, their remarks appear in the press and not in biomedical journals, at least in the case of influenza A (H1N1).

l. The greater impact of this new influenza in peripheral countries characterized by weak health systems reveals the contradictions of capitalism at a global level but, at the same time, evidences the feebleness, haste, ahistoricity and unilateralism of, at least, one part of the critics.

m. I believe that a whole series of Marxists became Foucaultian for two main reasons: both schools of thought excluded the role of the subject and both, consciously or not, sought – and still seek – uncausal determinisms which, for some, refer to “power” and for others, to the economic and political dimension.

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