
ICU Volume 9 - Issue 3 - Autumn 2009 - Interview

Experience From the Influenza Outbreak in Mexico

Background: Natural Disasters

Mexico has suffered from more than its fair share of disasters. In 1985, an earthquake struck Mexico City killing more than 10 000 inhabitants and destroying or disabling the most important high care hospitals. Following the earthquake, Mexican society showed a deep sense of humanity, solidarity and awareness about the importance of being prepared for disasters. New laws and rules were created with regards to the design of hospitals and skyscrapers in high risk zones, the Civil Protection Secretary was created and special education, "disaster teams" for first aid were introduced, evacuation routes for every building and simulations were planned to protect the population in case of a new treat of earthquake, fire or flood. A sonar system was installed at the pacific shore as to send an alarm 40 seconds before an earthquake would hit Mexico City. In 1988, another natural disaster occurred – hurricane Gilberto struck Mexico twice, first in the Yucatan peninsula in the city of Cancun and then at the other site of the Gulf of Mexico in the northern city of Monterrey, leaving hundreds of deaths and economic losses of millions of dollars in its wake. However, despite these recent natural disasters, and the preparation that resulted, we were not prepared for an epidemical or biological disaster.

Outbreak

The Influenza outbreak observed from March to May 2009 in several cities of Mexico mainly affected the fragile intensive care system and the health system in general, showing deep flaws and a general lack of knowledge of how to act and react in case of an epidemical event. It took nearly a month to fit all the pieces together and to see that we were facing an outbreak with a serious threat for the population at large and given our lack of experience in this type of case, we did not know what to do. Additionally, there were concerns with regards to the health workers, they were highly exposed to the virus due to their inexperience and insufficient protection equipment and supplies. Mexican health authorities sent an epidemiological alert about the known cases of influenza on April 16th, 2009. The same day, the Mexican Association of Critical Care Medicine (AMMCTI) held its monthly session, at which an important subject was discussed: The increasing number of cases of severe pneumonia in younger people. These cases were invading intensive care units (ICUs) across the country and were associated with high acute respiratory failure, multi organ failure and high mortality. A common pattern was observed: All patients in these cases were below 65 years, obese, with severe hypoxemia and there were difficulties to ventilate them. Also, it was apparent that health workers were becoming infected by patients despite taking the usual precautions. Of course, the highest numbers of cases of infected health workers were observed in the first days of the outbreak, in March and April. Those professionals who participated in this session were very concerned and motivated to rectify the issues and change our current course. A major concern was in our minds – we were facing an outbreak of influenza, which we were not prepared for, and had no plan at all to deal with a biological disaster like the one that was facing us. Our highly demanded ICUs, which most of the time are full of patients, might be under further demand from patients suffering from the epidemic- our primary concern at that time was the knowledge that there were not enough ventilators available for all patients who would require ventilatory support. Additionally, ICUs were not designed with negative pressure rooms, doctors and nurses were not trained to attend patients with highly transmissible infections, and there was not proper safety equipment to protect them during patient care in the ICU. There was a high probability, given these problems, of this epidemic causing the total failure of the healthcare system.

Organisation and Planning

Members of the AMMCTI agreed to start organising ourselves to make an action plan for an eventful outbreak of influenza. Colleagues from Mexico City and from all over Mexico were informed about the epidemic, and advised on how to treat patients and how to protect doctors, nurses and other health workers, as well as prepare for the number of patients which were admitted in their units with severe pneumonia. We were acutely aware that the impact of the outbreak would be on ICUs.

By April 21, we sent a call for help to some colleagues, mainly those who had previous experience with SARS, in an attempt to get specific recommendations on appropriate measures of protection, and the supplies and equipment that we would require. Members of the AMMCTI became involved in committees organised by the federal Health Secretary and the more localised health system from the states. We were just three days ahead of the official announcement of the new virus causing the infection in Mexico when we received the first responses to our call for help. The responders, Randy Wax from University of Toronto and Edgar Jimenez from University of Florida, took immediate action and scheduled a series of web talks about protection from the spread of infection in cases of biological disasters. Also the AMMCTI designed a specific web page with information about influenza, primary care and information about how to avoid transmission.

International Response

Exactly one week after our meeting, the President of Mexico announced that México was facing an outbreak of a new type of virus of influenza, the swine origin flu AH1N1, and for that reason schools, universities and public buildings had to be closed the very next day in order to cut down the transmission of the virus in a city of nearly 20 million people. For the three weeks that followed, Mexico was immersed in what several called the first pandemic of the new era. People started wearing facemasks in public settings, rapidly depleting stocks of these products even in hardware stores. In hospitals, especially within ICUs and ERs there were insufficient supplies to attend to the demand of patients with flu, and there was a lack of diagnostic tests and antiviral treatments. Mexican health authorities took drastic measures to efficiently control the epidemic; and a special budget was authorised to buy supplies, equipment, diagnostic tests and treatment with antivirals. However, in the first days of the outbreak, there was an overwhelming feeling of fear and hopeless when patients crowded the ER and there were mass transfers into ICUs. The web talks that were given by Dr. Edgar Jimenez and Dr. Randy Wax were well attended by doctors, nurses, and administrators from several hospitals in Mexico City and in other cities. The Critical Care Society web page provided information about influenza, and there were numerous

other examples of solidarity, like the letters to members of the AMMCTI sent by the president of the SCCM and colleagues from all over the world (Canada, USA, China, Spain, and Germany, among others).

The health secretary, the federal government and the government of states involved in the outbreak gave supplies for protection, diagnosis and treatment. Members of the AMMCTI designed a decision making chart for treatment of acute respiratory failure secondary to severe pneumonia, and were involved in most of the committees during the outbreak.

Despite the fact that influenza virus AH1N1 was virulent, the associated mortality was relatively low, but the economic impact was quite high. The epidemic has spread rapidly all over the world and has reached the level of pandemic according to WHO. Now we are preparing the second strike for this coming winter and schools, universities, public buildings, federal and local governments are working intensively to prepare people for the potential reoccurrence of the outbreak.

What we learned from the epidemic was that we have to have a plan for biological disasters, that mother nature can strike at any moment and most of the time is not so benevolent. For that reason the Secretary of Health together with a multidisciplinary team is working to map out directives on the minimal equipment and supplies needed for ICUs to guarantee medical attention for severely ill patients under these extreme circumstances. Also, there is a nationwide campaign underway to show the population how to act in case of an epidemic, and how to prevent transmission. In the State of Mexico there is a telepresence programme which utilises robots and the internet to treat patients in distant cities.

Since the outbreak, we have returned somewhat to what we call normality, but we are mindful of the immediate need to prepare for the potential reappearance of influenza this coming winter. The health system is preparing the population with information about how to prevent influenza, primary care measures to avoid transmission of the virus, a daily count of new cases, mortality, statistics, improvement of equipment and supplies, symposiums, etc.

Conclusion

With the initial phase of this epidemic nearing completion in our area, we are able to finally reflect on our state of preparedness for disasters. It has become clear that it is a priority to plan for the possibility of all types of disaster, not just the predictable events such as hurricanes or earthquakes, in every ICU of Mexico. Of crucial importance with regards specifically to biological threats is the improvement of efficient medical attention for critically ill patients, the protection of health workers from highly virulent viruses and/or bacteria and the decrease of mortality by careful monitoring of vulnerable patient populations during outbreaks. At this point, we feel relatively confident of our position should we face an outbreak in the future, however we must challenge ourselves to act in an even more organised and rapid way to save more lives than we did in our recent showdown with AH1N1.

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