Editorial

Influenza surveillance: advances and challenges for Brazil

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Influenza viruses cause acute respiratory infection and are present in all parts of the world. These infections are also seasonal in nature, occurring mainly in autumn and winter[1]. The influenza virus belongs to the *Orthomyxoviridae* family, presents a segmented RNA genome and has four cataloged types: A, B, C, and D. The A and B viruses can cause epidemics, being that type A can also cause pandemics. The type C virus is less common and generally causes mild infections, without great impacts on health. Influenza D viruses are exclusively zoonotic[2].

The World Health Organization (WHO) estimates a global burden of approximately 3 to 5 million cases of severe illness per year, and of these, approximately 290,000 to 650,000 people die due to respiratory complications. Additionally, epidemics can result in high levels of worker/school absenteeism, productivity losses, while also health services and workers[1].

In Brazil, influenza surveillance began in 2000 with the monitoring of flu-like cases in sentinel health units[3]. In 2004, after the threat of the highly pathogenic avian influenza, the country adhered to the international strategy proposed by the Centers for Disease Control and Prevention (CDC) with the goal of strengthening the laboratory diagnostics network to detect seasonal and novel influenza viruses[4].

These initiatives have not succeeded in minimizing the harmful effects of the influenza A pdm09 virus (H1N1), which in 2009 alone affected 50,482 individuals across Brazil and caused 2,060 deaths[5]. However, the situation served as an important laboratory to assess and improve the national surveillance and healthcare network relative to this disease. In addition to identifying the respiratory viruses circulating in Brazil, current monitoring helps adapt the seasonal influenza vaccine to the Southern Hemisphere, ensuring the minimum representativeness of virus circulation in all of the country's states[6].

Data from the Brazilian Ministry of Health between 2012 and 2017 point to a reduction in the number of cases of influenza when compared to the pandemic occurred in 2009. In this period, 27,674 individuals were identified with the influenza virus and 4,605 deaths were associated with the infection. However, between January and June 2018 (epidemiological week 25), 3,558 cases of influenza were confirmed in the country. The state of Goiás accounted for approximately 10.4% and 63% of the total number of cases registered in Brazil and in the Center-West region, respectively, presenting an 18% lethality rate[7].

Epidemiologically, the main prevention and control measures for the disease include annual influenza vaccinations, standard and droplet precaution measures, and early initiation of drug therapy in individuals with flu-like syndrome and who are part of risk groups[8].

Invariably, vaccination is one of the most effective measures to prevent severe cases and reduce lethality[9]. However, the discussion about the period of vaccine availability in the Southern Hemisphere is controversial. Researchers[10-11] have traditionally emphasized April as the adequate time to start vaccination campaigns, based on the prediction that the greater risk for influenza infections in South America lies mainly between April and September. However, there is no seasonal pattern for the occurrence of influenza and other respiratory diseases in the country. Furthermore, there is evidence that in the Northeast region, vaccinations are being carried out in a post-seasonal period[12].

In fact, on observing the last few years of this infection in Brazil (2009-2018), it can be observed that between January and March the distribution of the disease was uneven in all Brazilian regions, even though the vaccination is routinely distributed between April and May in the entire country. In 2017, in the Northeast and the North regions, the number of cases notified before the national influenza vaccination campaign was higher when compared to the following months. Furthermore, in the Center-West, the peak number of cases was also before the national campaign[7].

Based on this scenario, we must question what measures could be taken by health surveillance in Brazil to minimize influenza morbimortality. One viable strategy recommended[13] involves introducing the vaccine at least three months before the current Southern Hemisphere schedule. Another option could be implementing the vaccine earlier in only some regions, considering local epidemiological conditions. However, the adoption of such a solution presents great logistic challenges for international and national laboratories. Thus, the feasibility of introducing an earlier schedule in Brazil must be investigated and incentivized.

Another factor that must be taken into consideration during peak influenza periods is the indiscriminate dissemination of information by the media and social networks, which in distorted proportions does not always reflect the actual epidemiological situation. These mechanisms lead to great repercussions in the behavior of the general population and health professionals, causing a high demand for the vaccine and sometimes even its

commercialization in the private sector at exorbitant prices with questionable technical quality. This occurs because the packaging, transportation, and administration of the vaccine do not always follow the specifications set forth by official organizations. This can reduce the efficacy of the immunobiological substance and cause adverse events related to the vaccination.

The facts presented here leave no doubt that other seasonal epidemics associated with the influenza virus can affect Brazil in the near future. National efforts to reduce the lethality of this disease must be a priority for public health. To successfully face influenza in Brazil, researchers must be mobilized by the gaps in knowledge, both in terms of the timing of the vaccine and the consequences of irresponsible information/communication in times of crisis.

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