Influenza: comparison between the incidence of the virus in a underdeveloped country in children up to 9 years

Influenza: comparação entre a incidência do vírus em um país subdesenvolvido em crianças de até 9 anos

DOI:10.54022/shsv3n1-052

Recebimento dos originais: 23/02/2022
Aceitação para publicação: 07/03/2022

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ABSTRACT
Influenza is a highly mutated virus and has 4 subdivisions: A, B, C, and D. This agent causes an acute and contagious infection that affects the human respiratory tract, being responsible for epidemics such as H3N2 in 2021. There are unique aspects to how children present with infection that are important to recognize. In addition, children play a significant role in viral transmission within communities. Brazil is no exception, as evidenced by the substantial numbers of cases in the country, disparities among the Brazilian regions were seen. Comparing 2021 with 2020 it is possible to notice an increase of approximately 34% of cases in children in the country.

Keywords: influenza, children, brazil.

RESUMO
O Influenza é um vírus altamente mutante e tem 4 subdivisões: A, B, C e D. Este agente causa uma infecção aguda e contagiosa que afeta o trato respiratório humano, sendo responsável por epidemias como a do H3N2 em 2021. Há aspectos únicos de como as crianças apresentam a infecção que são importantes de reconhecer. Além disso, as crianças desempenham um papel significativo na transmissão viral dentro das comunidades. O Brasil não é exceção, como evidenciado pelo número substancial de casos no país, foram observadas disparidades entre as regiões brasileiras. Comparando 2021 com 2020, é possível notar um aumento de aproximadamente 34% dos casos em crianças no país.

Palavras-chave: influenza, crianças, brasil.
1 INTRODUCTION

Influenza is a highly mutated virus belonging to the Orthomyxoviridae family. In addition, it is characterized by being an RNA negative\(^1\) microorganism and has 4 subdivisions: A, B, C, and D. Besides being known as the flu virus, this agent causes an acute and contagious infection that affects the human respiratory tract, with A and B being responsible for epidemics such as H3N2 in 2021\(^2\). Clinically, influenza is characterized by acute onset fever, chills, running nose, cough, sore throat, headache and myalgia\(^2\). Therefore, it is worth emphasizing the importance of children in increasing the number of contamination and transmission to the population during seasonal influenza epidemics, especially by close contact exchange. Growing evidence supports the idea that early influenza infection can uniquely establish lasting immunologic memory\(^3\). Thus, Brazil stands out as a country in which the increase in the number of cases of influenza has occurred mainly in children aged 0 to 9 years, a number close to 1 million, comprising approximately 1/3 of the country's child population. In this perspective, it becomes evident the need to analyze the prevalence of the virus in this part of the population seen as vulnerable to negative outcomes, besides being important vectors of transmission.

2 OBJECTIVE

Compare and analyze the prevalence of influenza virus case prevalence in the Brazilian regions in children aged zero to nine years old, within a 2-year period.

3 METHODS

It corresponds to a quantitative epidemiological study, carried out an active search to obtain data through the Unified Health System Database (DataSus) using the International Classification of Disease (ICD10) concerning respiratory system disease, influenza. Using the variables: year of diagnosis between 2020 and 2021, brazilian regions and age from under 1 year old to 9 years old. After gathering, the results obtained were tabulated in Microsoft Excel for analysis.

4 RESULTS

Analyzing the total number of cases of influenza virus in Brazilian regions,
it is possible to notice an increase of approximately 34% of cases in children in the country. The North region, in 2020, registered 327,142.09 cases, and in 2021, 481,956.09, that is, an approximate increase of 47% of children infected by the virus in this Brazilian region. In the Northeast region, the increase in the number of cases was close to 32%, resulting in 428,847.02 occurrences recorded between the years studied. When analyzing the Southeast region, the numbers documented in 2020, suffered an increase of 34.42% or 205,135.19 cases, registering 801,073.14 cases in 2021. The South region, which in 2020 had 189,336.53 infected children, in 2021 increased by 46.94%, in total 88,866.56 more cases, reaching 278,203.09 cases in the same year. Furthermore, the center-west region recorded the lowest percentage, approximately 10%, resulting in 17,759.24 new infections.

Graph 1. Comparison of the total number of cases in Brazil (2020-2021)

Thus, the South and Northeast regions stand out as opposite poles regarding the total number of cases in Brazil in the last 2 years. In comparison with the South (467,539.62), the Northeast (3,056,830.30) showed an increase of approximately 553% of cases in children.
5 CONCLUSION

Acute respiratory illnesses are the most common problems of childhood, and influenza viruses are among the common viruses responsible for them. Influenza infection rate is higher in preschool children and represents a significant burden of disease in children worldwide, with high rates of hospitalization and substantial morbidity and mortality. Brazil is no exception to this worldwide estimate, as evidenced by the substantial numbers of cases in the country, including the growth in the total number of cases when comparing 2020 and 2021. It is worth mentioning that there were disparities among the Brazilian regions; the Northeast region stands out with the highest number of infected children and the North region with the highest growth in cases when compared to the previous year (47%).

Thus, it is necessary to mention that in order to decrease the number of cases and, consequently, the complications intrinsic to the virus in children inactivated influenza vaccine (IIV) and live attenuated influenza vaccine (LAIV) are available for use with good efficacy. Use of face masks and hand hygiene are the most important measures to reduce the risk of infection transmission from person to person.
