

FOODBORNE DISEASES IN MENDOZA, ARGENTINA: HOSPITALIZATIONS DURING 2013-2023

Introduction

Foodborne diseases (FBDs) are illnesses caused by the consumption of food contaminated with pathogenic agents such as bacteria, viruses, parasites, or harmful chemicals. These diseases represent a major public health issue, particularly in low- and middle-income countries where sanitary conditions and food safety education are limited. The most common symptoms include nausea, vomiting, and diarrhea, although they can also lead to more severe conditions such as cancer, kidney failure, or neurological disorders. The populations most vulnerable to these diseases include children, pregnant women, the elderly, and individuals with weakened immune systems.

Objectives

The aim of this study is to evaluate the trend of reported FBDs in the province of Mendoza over the last 10 years.

Methods

The database was provided by the Biostatistics Department of the Directorate of Epidemiology, Quality and Management Control of the Province of Mendoza. It included data on hospital discharges of patients diagnosed with 'botulism,' 'hemolytic uremic syndrome' (HUS), 'trichinosis,' and 'unspecified bacterial intoxication.' The software Infostat (www.infostat.com.ar) was used for data analysis. Contingency tables, and Pearson's Chi-square (PCh) and Pearson's contingency coefficient (PCC) were used to analyze the association between 'age,' 'diagnosis,' and 'number of cases.' To examine the annual trend of FBDs, a generalized linear model (GLM) was fitted, selecting the Poisson family and log-link function, followed by a DGC contrast test. Graphs were generated using GraphPad Prism 8.0.2 software and Microsoft Excel 2019.

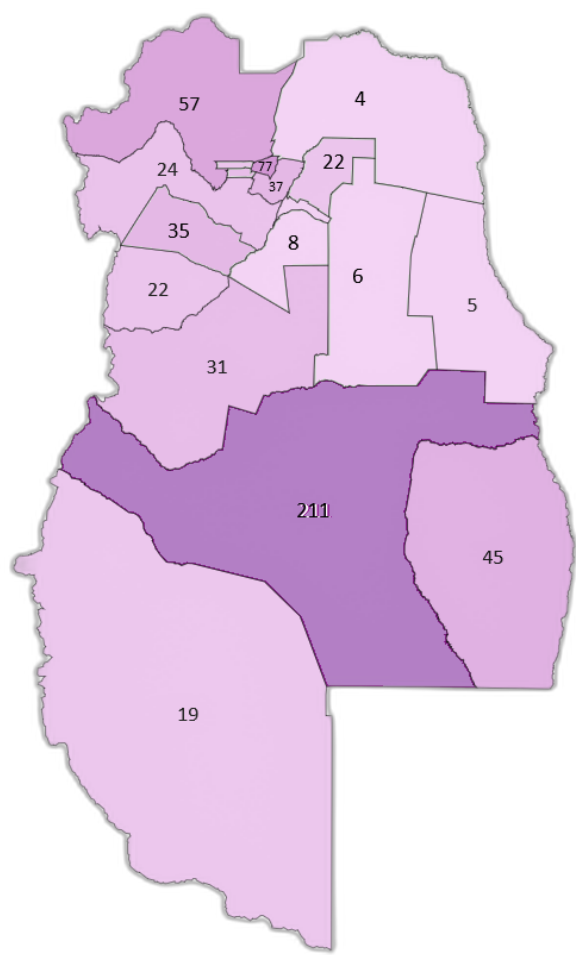


Figure 1 - FBD hospitalizations by department in Mendoza, 2013-2023.

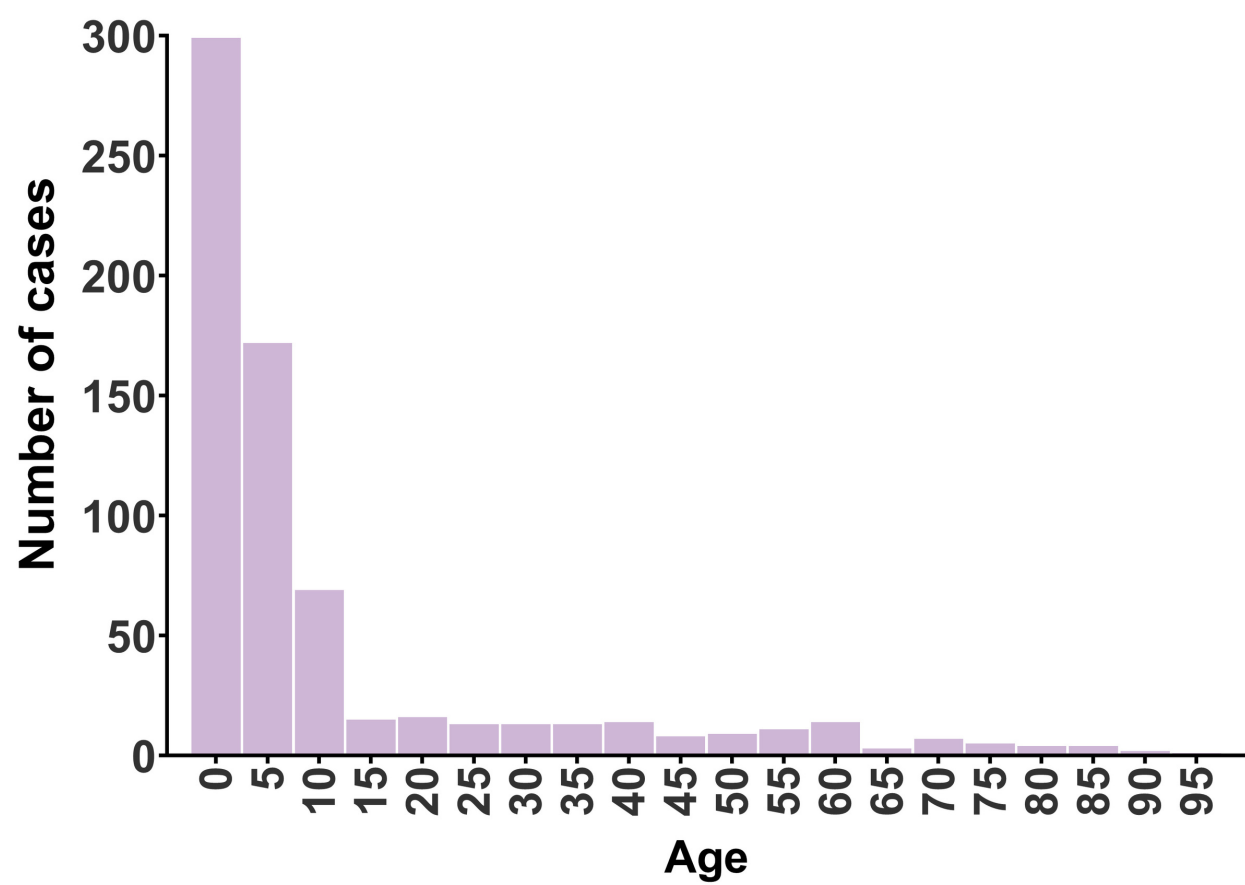


Figure 2 - Age distribution of patients hospitalized for FBDs.

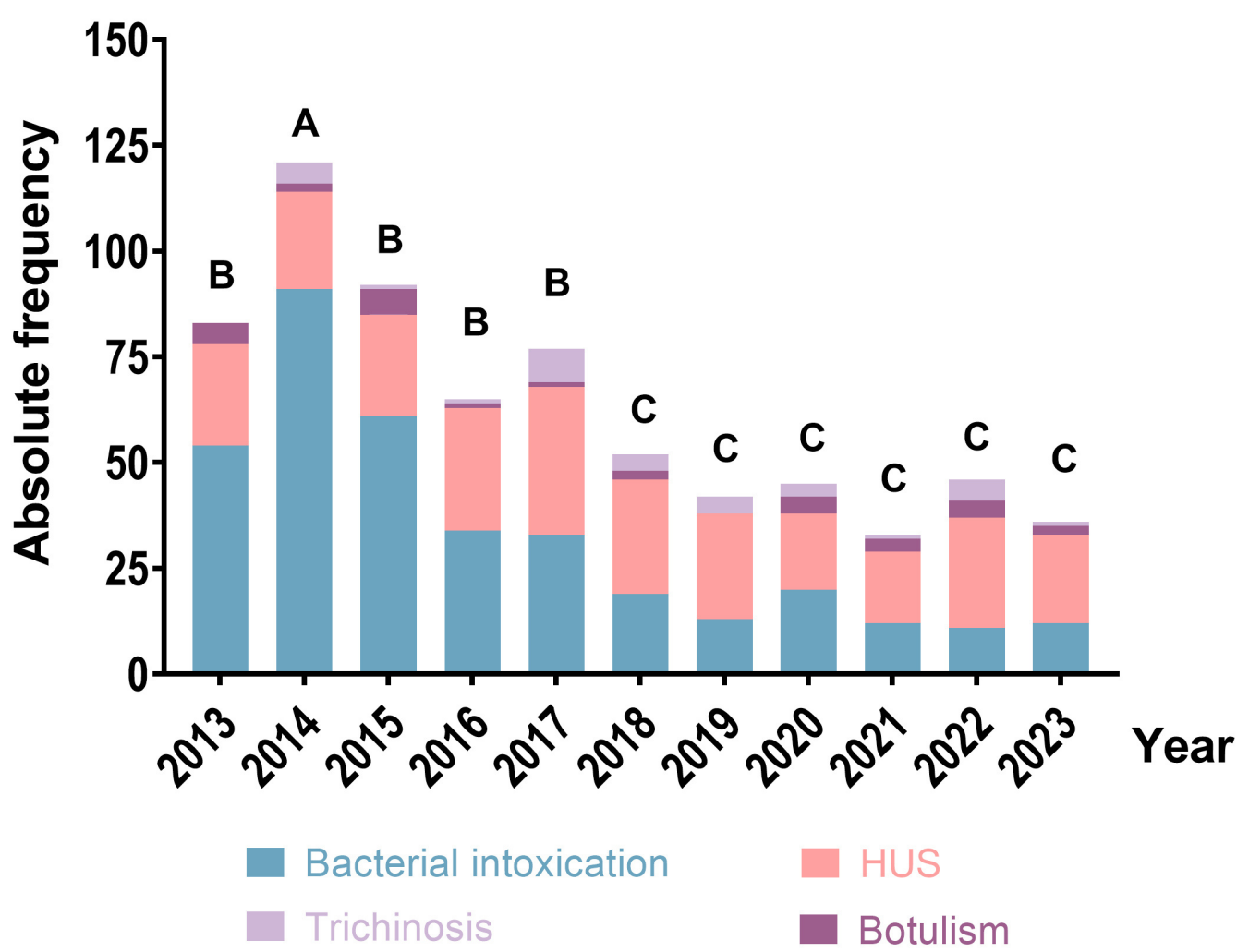


Figure 3 - Disease diagnosis for inpatient cases of FBDs.

RESULTS

The database contained 692 cases of FBD hospitalized during the last decade, of which 675 were residents of Mendoza. The highest number of cases occurred in the department of San Rafael (Figure 1). There, one in every thousand inhabitants suffered from severe case of FBD during this period.

Patients ranged in age from 0 to 94 years. The number of cases depended on the age (PCh $p < 0.0001$; PCC = 0.91). Half of the patients were younger than three years and three quarters were younger than 11 years. Figure 2 shows that children were the most affected by FBDs. The Spearman correlation coefficient showed a strong inverse correlation between the number of cases and age for both HUS and botulism.

When analyzing the occurrence of each FBD, it was observed that the highest percentage belonged to the category of "bacterial intoxication" (52%), followed by HUS (39%), trichinosis (5%) and botulism (4%). Figure 3 shows that the total frequency of hospitalizations due to FBDs has decreased significantly in the last decade (PCh $p < 0.0001$, PCC = 0.39). The reduction was attributed to the category "bacterial intoxication" (PCh $p < 0.0001$, CCP = 0.60). The GLM analysis indicated that the highest number of cases was recorded in 2014, while a significant decrease was observed since 2018 (DGC test: different letters indicate significant differences $p < 0.05$).

CONCLUSIONS

The analysis of hospitalized cases of FBDs in Mendoza reveals that the child population is the most vulnerable to developing severe cases. The decline in the number of hospitalized patients over the past decade is encouraging, yet it is imperative to reinforce prevention strategies to guarantee food safety and the well-being of the child population. To mitigate the risks associated with FBDs in the province, it is recommended to maintain continuous epidemiological surveillance, enhance the hygienic-sanitary infrastructure, implement more rigorous food safety controls, and implement educational campaigns on hygiene and food handling, particularly targeting early childhood.