RESULTS

There was a total of 6,086,826 and 5,895,278 pneumonia admissions, among all age groups, between pre-vaccine period (2002- 2009) and post-vaccine (2011-2019), respectively. Representing a simple percentage reduction of 20.9% and 4.7% for those individuals between 20-59 years and 60-79 years, respectively. AQUI VOU DESCREVER A INCIDENCIA

Among the vaccinated groups, there were 3,171,207 pneumonia hospitalizations cases in eight years of the pre-vaccine period and2,253,107 nine years after the vaccine Program started. These data show that the simple percentage reductions in incidence for children were: 20.2%, 19.9% and 20.8% for the age groups <1 years, 1-4 years, and 5-9 years, respectively. Figure 1 exemplifies the simple pneumonia incidence hospital admissions through time.

In the multivariate analysis, the interaction between vaccination and the time trend was significant (p<0.05). It was observed for all ages, except for those between 10 and 19 years, Table 2 . This age group were in a reducing curve even before the vaccine implementation. For all age groups ranging from zero to 9 years, the post vaccination period had a negative trend, reducing 1.75, 0.16 and 0.11 cases per 100000 inhabitants per month for age groups <1 year, 1-4 year and 5-9 year, respectively (Table 2). For all age groups larger than 20 years, the post vaccination period have positive trends, but in lower intensity compared to trends before vaccination period. It means that the number of cases after vaccination is still increasing, but slower than before the vaccination. It is outstanding for the age group >80 years in which the increase in the number of cases reduced form 4.19 to 1.36 cases per 100000 inhabitants per month (Table 2).

Table 2. Pneumonia hospitalizations multivariate analysis of post versus pre-vaccine periods

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Estimate\* | |  |  |
| Age group | Before vaccination | After vaccination | Std.Error | p-value |
| <1 year | 0.78 | -1.75 | 0.922306 | <0.001 |
| 1-4 years | 0.86 | -0.16 | 0.353188 | <0.001 |
| 5-9 years | 0.055 | -0.11 | 0.087651 | 0.002 |
| 10-19 years | -0.00975 | 0.006 | 0.027549 | 0.311736 |
| 20-59 years | 0.147 | 0.013261 | 0.05709 | <0.001 |
| 60-79 years | 1.326 | 0.196713 | 0.501425 | <0.001 |
| >80 years | 4.199 | 1.366263 | 1.276784 | <0.001 |

\*Estimate is the expected variation on the incidence per 100,000 inhabitants per month after the vaccine introduction

The multivariate analysis that compared the two different vaccine schedules 3+1 (2011-2015) and 2+1 (2016-2019) resulted in no significant difference between the trend for both periods. The reduction of one dose in the first year of life did not result in an increased pneumonia hospitalization incidence for any age group, table 3.

Table 3. Pneumonia hospitalizations multivariate analysis between the two different post-vaccine periods: 3+1 (2011-2015) and 2+1 (2016-2019)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Estimate | Std.Error | t.value | p |
| <1 year | -0.15031 | 2.260478 | -1.51411 | 0.198536 |
| 1-4 years | 0.73101 | 0.711503 | 1.157526 | 0.051021 |
| 5-9 years | -0.39334 | 0.290455 | -2.96996 | 0.24829 |
| 10-19 years | 0.012991 | 0.098559 | -0.16087 | 0.33574 |
| 20-59 years | 0.032566 | 0.073589 | 0.955313 | 0.954552 |
| 60-79 years | 0.306623 | 0.35997 | 1.692854 | 0.05662 |
| >80 years | 2.881498 | 1.152801 | 4.571587 | 0.461348 |

Incidence of hospitalization is summarized in Supplementary Tables XXXX.