

# PREVALENCE OF RESPIRATORY INFECTIONS AND ACUTE DIARRHEAL DISEASES IN CHILDREN OF VILLA CARMEN – QUILLACOLLO, 2017

Dr. Alfredo Sejas Claros<sup>1</sup>, Dra. Rocio Condori Bustillos<sup>1</sup>

<sup>1</sup>Médico Cirujano, Hospital "Dr. Benigno Sánchez" – Quillacollo (Cochabamba – Bolivia).

## ABSTRACT

**Introduction:** Respiratory infections and acute diarrheal diseases are diseases prevalent in children under 5 years old, low socioeconomic factors and poor hygiene favor the development of these pathologies. **Objective:** Determine the prevalence of these diseases in children under 5 years old in the community of Villa Carmen - Quillacollo during 2017. **Materials and Methods:** A descriptive, cross-sectional study was carried out. The universe was of 1 780 children under 5 years of age who visited the health center of Villa Carmen - Quillacollo. **Results:** It was found that 651 children under 5 years of age became ill with respiratory infections (37%) and 222 became ill with acute diarrheal diseases (12%). The highest prevalence of respiratory infections was in the months of April, May, July and the highest prevalence of diarrheal diseases was in the months of March, April, June, July and December. It was identified that children aged 1 year under 2 are the most affected with respiratory infections presenting common cold and children under 1 are the most affected with diarrheal diseases presenting diarrhea and persistent diarrhea. **Conclusion:** The prevalence of respiratory infections and acute diarrheal diseases in the community of Villa Carmen is 37% and 12% respectively, data that have to be considered, for which information and education is recommended to mothers and children regarding preventive measures to limit the prevalence of these pathologies.

**Keywords:** Respiratory Tract diseases, diarrhea, prevalence, child.

## INTRODUCTION

Acute respiratory infections and acute diarrhea illnesses form worldwide and overall in underdeveloped countries the principal causes of child death specially on under 5 year olds. In our country, child death has as principal causes these two pathologies<sup>1,2</sup>.

ARIs and ADD are the infections that relate the most with patients who are under 5 years old. They are as well the ones that principally relate to a deficit of hygiene. Disadvantaging socioeconomic factors (poor, low schooling of guardians, lack of assistance to healthcare appointments, mother's age) and the parent's absence of knowledge about alarm signs found in these illnesses<sup>3</sup>.

The ARIs are defined as the aggrupation of transmissible respiratory illnesses (Cold, sinusitis, otitis, acute pharyngitis, pharyngitis, tonsillitis, laryngitis, bronchitis, bronchiolitis, laryngotracheitis, until reaching pneumonia). The next characteristic symptoms: Nose obstruction, cough, otalgia, rhinorrhea,odynophagia, respi-

ratory distress or noisy breathing and dysphonia, fever may accompany this clinical picture. Acute diarrhea is defined as the presence of liquid or water like dregs. While acute diarrhea is defined as the presence of watery or liquid dregs with a deposition frequency greater than three times in 24 hours, it may be accompanied by abdominal pain, symptoms of dehydration, nausea, vomiting and, depending on the origin, fever or stool may occur with blood. The causative agents of diarrhea are viruses (rotavirus diarrhea), bacteria (gastroenteritis, infectious diarrhea due to enterobacteria) and parasites (amebiasis, giardiasis). The main complication of ADDs is dehydration, while pneumonia is the main complication of ARIs, both complications are responsible for deaths in children under 5 years of age when these infections are not treated in due time<sup>4,5</sup>.

The community of Villa Carmen located in the municipality of Quillacollo is a rural - urban area dedicated to agriculture, presenting humble and emerging families with a demographic growth.

**Correspondence to:**  
Dr. Alfredo Sejas Claros:  
al-sejas@hotmail.com

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There are no reported studies on the prevalence of ARIs and ADDs over this population. The present work aims to determine the prevalence of ARIs and ADDs in under 5 years of age children in the community of Villa Carmen - Quillacollo during the year 2017.

## MATERIALS AND METHODS

The present work is descriptive and cross-sectional. The universe is all children under 5 years who attended the health center of Villa Carmen's community in the municipality of Quillacollo, making a total of 1,780 children, during the months of January to December of 2017.

The sample is based on 873 cases of children under 5 years of age who presented ARIs and ADDs. Selected by non-probabilistic type sampling. It should be mentioned that the remaining amount of 907 children under the age of 5 were treated for other pathologies (contact dermatitis, bacterial conjunctivitis, varicella, scabies, diaper dermatitis, cutaneous mycosis, impetigo, pyodermitis among others) and attended to control for healthy child.

**Inclusion criteria:** All children under 5 years of age who became ill with ADDs and ARIs in the community of Villa Carmen - Quillacollo, that were attended in the community health center, during the year 2017.

**Exclusion criteria:** Children under 5 years of age with ARIs and ADDs that assisted to Villa Carmen health center who do not live in the community of Villa Carmen.

**The variables:** Global prevalence, by months and by most affected age range.

In the present study we used: Data collection and processing templates and templates for recording results.

An exhaustive review of all the medical records of children under 5 years of age was carried out, as well as review of records of medical attention for children under 5 years of the National Health Information System (SNIS) and review of epidemiological records of the Villa Carmen health center, municipality of Quillacollo. With the purpose of quantifying patients under 5 years of age who had ARIs and ADDs, attended from January to December 2017. We proceeded

with the quantification of children under 5 years of age with ARIs, registering the following pathologies: common cold, water pharyngitis, pharyngotonsillitis and non-severe pneumonia. And the quantification of children under 5 years old with ADDs, recording the following: Amebiasis, giardiasis, bacterial gastroenteritis, diarrhea and persistent diarrhea. The data were processed to obtain the monthly percentages and to determine the global prevalence of both pathologies. Quantification was also performed according to age (less than 1 year, 1 year to less than 2 years, 2 years to less than 5 years of age), to determine the age group most affected by these diseases.

The results obtained were tabulated and processed in graphics in the Microsoft Office Word and Excel 2010® programs.

**Limitations:** It will not be possible to know if some children under 5 years of age in the community of Villa Carmen with ARIs or ADDs were treated in other health centers as well as if they presented complications. Nor the number of children under 5 years with these pathologies that were not taken to medical consult by their parents.

**Ethical considerations:** Since patient records and records of the Villa Carmen health center were used, the pertinent permission of the health center was requested for the use of the data.

## RESULTS

In the course of January to December, the year 2017. A total of 1 780 children under 5 years old were attended, of which 651 correspond to sick children with ARIs (37%) and 222 correspond to sick children with ADDs (12%). (See graphic 1). The highest prevalence of ARIs were found in the months of April, May, July and the highest prevalence of ADDs in the months of March, April, June, July and December. (See table 1 and chart 2).

It was identified that children of 1 year under 2 years old are the most affected with ARIs presenting common cold. (See table 2). And in ADDs it was identified that children under 1 year old are the most affected, presenting diarrhea and persistent diarrhea. (See table 3).

Graphic 1. Prevalence of ARIs and ADD in children under 5-year-old

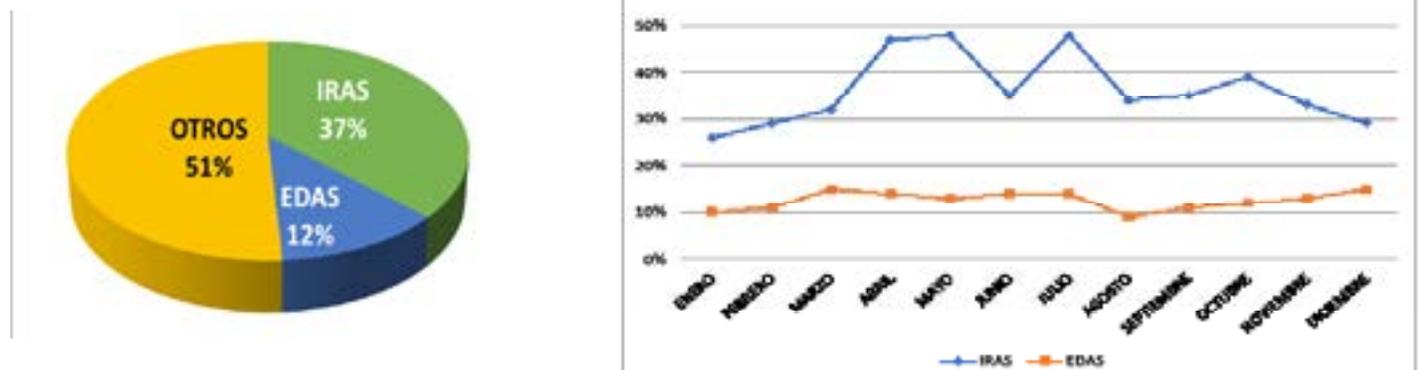


Table 1. Prevalence peaks of ARIs and ADDs during 2017 in children under 5-year-old

MONTH	NUMBER OF CHILDREN UNDER 5-YEAR-OLD ASSISTED	CHILDREN UNDER 5-YEAR-OLD WITH ARI	PERCENTAGE OF ARIs	CHILDREN UNDER 5-YEAR-OLD WITH ARI	PERCENTAGE OF ARI
JANUARY	148	38	26%	15	10%
FEBRUARY	153	45	29%	17	11%
MARCH	135	43	32%	20	15%
APRIL	122	57	47%	17	14%
MAY	193	93	48%	26	13%
JUN	155	54	35%	21	14%
JULY	148	71	48%	20	14%
AUGUST	151	52	34%	13	9%
SEPTEMBER	142	50	35%	15	11%
OCTOBER	150	59	39%	18	12%
NOVEMBER	144	48	33%	19	13%
DECEMBER	139	41	29%	21	15%

Table 2. Prevalence of ARI by age range in children under 5-year-old

PATHOLOGY	AGE RANGE	NUMBER OF PEOPLE SICK	PERCENTAGE
COLD	less than 1 year	124	19%
	1 year to less than 2 years	133	20,5%
	2 years to less than 5 years	68	10,5%
ACUTE PHARYNGITIS	less than 1 year	39	6%
	1 year to less than 2 years	39	6%
	2 years to less than 5 years	42	6,5%
TONSILLOPHARYNGITIS	less than 1 year	52	8%
	1 year to less than 2 years	61	9%
	2 years to less than 5 years	52	8%
NOT SERIOUS NEUMONIA	<1 year	11	2%
	age 1 to <2 years	16	2,5%
	age 2 to <5 years	14	2%

Table 3. Prevalence of ADDs for age range in children under 5-year-old

PATHOLOGY	AGE RANGE	NUMBER OF PEOPLE SICK	PERCENTAGE
DIARRHEA AND CHRONIC DIARRHEA	less than 1 year	67	30%
	1 year to less than 2 years	24	11%
	2 years to less than 5 years	9	4%
AMOEBIASIS	less than 1 year	14	6%
	1 year to less than 2 years	17	7,5%
	2 years to less than 5 years	19	8,5%
GIARDIASIS	less than 1 year	6	3%
	1 year to less than 2 years	9	4%
	2 years to less than 5 years	11	5%
BACTERIAL GASTROENTERITIS	<1 año	9	4%
	1 año a menor de 2 años	13	6%
	2 años a menor de 5 años	24	11%

## DISCUSSION

The determination of the prevalence of ARIs and ADDs in the present study opens a door to a set of possibilities and risks that are present and are widely discussed in the literature; such as the greater or lesser prevalence in the child population especially in the under 5 year olds and the much commented complications of these pathologies as causes of infant mortality. Another aspect is the ease of the dissemination of these pathologies either from person to person, through fomites or environmental factors (air pollution) in the case of ARIs, especially in children and faecal contamination in the case of ADDs, very common in our environment. Finding contaminated food which through poor hygiene contributes to the development of the disease<sup>6,7</sup>.

This study determined the prevalence of ARIs and ADDs in children under 5 years old in the community of Villa Carmen located in the province of Quillacollo, revealing a prevalence of ARIs of 37% and a prevalence of ADDs of 12% of the total number of minors of 5 year olds that were attended in the health center of Villa Carmen, in the months of January to December 2017. (See graph 1).

Comparing with other research studies conducted on the prevalence of ARIs in children under 5 years of age, the result of this study is similar to the obtained in a study of the "San Benito Health Center" in the province of Punata, which reported 36,4% prevalence of ARIs<sup>8</sup>, the result of this study is greater than the reported in the "Alto San Antonio Health Center" of the department of La Paz with a prevalence of ARIs of 23,3%<sup>9</sup> and the Health Center of Cuchil, in the canton of Sigsig - Ecuador, which reported a prevalence of 31,37%<sup>10</sup>. And it is lower than that reported in the "Health Center of Jadán, Azuay - Ecuador" with a prevalence of 59,9%. It should be mentioned that this health center and its population are located in a geographical area near the Andes mountain range, making it an endemic area for respiratory infections<sup>11</sup>. Regarding ADDs prevalence results, in a study presented in the San Andres Island - Colombia reported 14,2% prevalence<sup>12</sup>, similar to the result of the present study, while in the Health Center of El Pangui - Ecuador it was register an ADDs prevalence greater than 21,56%<sup>13</sup>.

Performing an analysis per month it is observed that the highest prevalence of ARIs is in the months of April, May, July and the lowest prevalence is in the month of January. The highest prevalence of ADDs is in the months of March, April, June, July, December and the lowest prevalence was registered in the month of August. It is observed that the highest percentages of prevalence of IRAS coincide with autumn and winter and the lowest percentages coincide with summer, while the prevalence percentages of ADDs remain almost constant throughout the year. (See graphic 2).

According to the most affected age, in ARIs it was identified that children under 1 year of age under 2 are the most

affected, presenting common cold (133 sick children) corresponding to 20,5% of the total number of children who became ill with ARIs ( See table 2). And in ADDs it was identified that children under 1 year old are the most affected, presenting diarrhea and persistent diarrhea (67 sick children), corresponding to 30% of the total number of children who became ill with ADDs (See table 3). In a study conducted in the "Lacma health center" of Cochabamba, the highest prevalence of ADDs was recorded in children less than one year of age<sup>14</sup>, similar to the present study.

The study shows that the prevalence of ARIs in the community of Villa Carmen exceeds  $\frac{1}{4}$  of the total number of patients under 5 years of age treated and the prevalence of ADDs is relatively low, but if both ARIs and ADDs pathologies are taken into account, the prevalence is of 49% (See graph 1) occupying almost half of medical care in children under 5 years of age, making known the relevance of knowledge about these pathologies.

It is important to mention that the present work only included children under 5 years of age and that it would represent a stimulus for the performance of other research works that include all pediatric patients.

In conclusion, the prevalence of ARIs and ADDs in the community of Villa Carmen is 37% and 12% respectively. Data that must be put to consideration by health personnel and the corresponding authorities, these figures indicate that these diseases can bring serious repercussions on the health of children if they are not treated on time. Fortunately in our country there are health programs for children under 5 years that provide medical care and free medication. Contributing significantly to the recovery of the health of these patients.

The result of the present study entails the possibility of a considerable risk of contracting these diseases due to the easy mode of infection and pathological development in children under 5 years old. Therefore, the information and education of mothers and children regarding prevention is recommended, emphasizing personal hygiene, mainly on hand washing with soap and water. This way, the prevalence of these pathologies would be limited, raising the quality of health in the population.

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