

# **Magnitude and Time Trend of Acute Respiratory Infections (Aris) Among Male School Students and Employees in Aleith**

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## **Abstract**

A setting-based descriptive study was conducted to study magnitude and time trend of acute respiratory infections (ARIs) among male school students and employees in Aleith. Data about Acute Respiratory Infections (ARIs) among school students and employees in Aleith during the last three years were collected by reviewing monthly and annual reports in school health units. The proportion of acute reparatory infections in the last three years among male student and employees in Aleith was high in year 1435 which was 50.2%, followed by the year 1437 which was 47% and 1436 was 43.3%. The time distribution of acute respiratory infections illustrates that the percentage of infection occurred during Jumada-Al-Thani (21.9%) in the year 1435, Moharam and Rabi-Al-Thani (17.3%) in the year 1436 and Jumada-Al-Awwal (18%) in the year 1437. In the year 1435, acute respiratory infection among student was 811(63.7%) and among employees was 462 (36.3%); in the year 1436, the disease was 1177 (71.4%) in students while in employees was 471 (28.6%) and in the year1437, the percentage was 747(64.7%) in students and 408(35.3%) in employees. The high percentages of Acute Respiratory Infections (ARIs) occurred among primary school students was high 35.6%, 45.5% and 48.1% in the years 1435, 1436 and 1437 respectively. The peak of ARIs occurred during the year 1435 and the minimum proportion rate of cases was found in 1436. The study concluded that ARIs were still high and more frequent in winter months.

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**Keywords:** Acute, Respiratory, Infections, Students, Aleith

## **Introduction**

Acute Respiratory Infection (ARI) is an infection of any part of respiratory tract or any related structures including Para nasal sinuses, middle ear and pleural cavity (Atul et al, 2014). Acute respiratory infections (ARIs) include infections in any area of respiratory tract lasting less than 30 days (Nadia et al (2012).

Nadia et al (2012) mentioned that Acute respiratory infections (ARIs) may be classified into acute upper respiratory infections (AURI) and acute lower respiratory infections (ALRI), depending on the main organs affected (nose, sinuses, middle ear, larynx and pharynx versus trachea, bronchi and lungs.

Acute Respiratory Infections (ARIs) are classified as upper respiratory tract infections or lower respiratory tract infections (LRTIs) depending on the airways predominately involved (Yazmin et al, 2015). Acute respiratory infections (ARIs) are a major health problem among children in developing countries leading to approximately 1.9 million deaths per year (Anand et al, 2015). The World Health Organization (WHO) reported that acute respiratory infections (ARIs) cause approximately four million deaths per year, as a rate equal above 60 deaths per 100,000 populations (Ti et al, 2015).

Acute Respiratory Infections (ARIs) are a major cause of morbidity and mortality in the world. They are responsible for about 4 to 5 million deaths annually. ARIs represent as third largest cause of mortality in the world and the top fatal infections in countries with low- and middle-income (Lucy et al, 2015). The incidence of Acute Respiratory Infections is especially high among infants, children, and the elderly and is more pronounced in low- and middle-income countries (Seto et al, 2013). Also Acute Respiratory Infections (ARIs) result in different disabilities such as deafness (Abid et al, 2012).

Acute respiratory tract infections (ARTI) are an important public health problem. They are responsible for considerable morbidity and mortality worldwide, and lead to an increase in absence from work and school and an increased number of consultations with clinicians i.e. increasing demand of seeking of medical and health care (Arianne et al, 2007). It has been referred to as a “forgotten pandemic”, because it kills more than 4 million individuals each year globally. Recognizing gaps in the knowledge regarding the burden of severe respiratory disease in the Middle East, the World Health Organization (WHO) Regional Office for the Eastern Mediterranean Region is taking steps to improve surveillance for respiratory

illness in order to support evidence-based decision-making in policy development (Abubakar et al, 2016). In a study carried out in primary health care centers in northern Saudi Arabia, Acute Respiratory Infections (ARIs) were responsible for 50% of morbidity among children under 5 years of age (El-Gilany, 2000).

## **Materials & Methods**

### **Study design**

The present study was setting-based descriptive study.

### **Study area**

The study was carried out in Alith school health unit. The town is a part of Makkah region. It is located in a tropical area characterized by its airspace as hot and dry, and the rise in temperature in the summer, due to the lack of vegetation, in addition to the high moisture content; because it is within walking distance of the Red Sea distance, while the climate in the winter shall be moderate and moderate, with the descent of small amounts of rain.

Alith school health unit provide primary health care for school students and employees. In Alith town there are 6 primary schools, 3 intermediate schools and 2 secondary schools. The school health units usually serve students in Alith schools, because student in other schools in villages and centers are served by primary health care centers that distributed throughout the province.

### **Study population**

The study population was primary, intermediate and secondary students in addition to teachers, personnel and workers in all schools in Aleith.

### **Data collection methods**

Data about Acute Respiratory Infections (ARIs) among school students and employees according to nationality in Aleith during the last three years were collected by reviewing monthly and annual reports in school health units.

## **Results**

In table 1, the proportion of acute respiratory infections in the last three years among student and employees in Aleith was high in year 1435 which was 50.2%, followed by the year 1437 which was 47% and 1436 was 43.3%. The time distribution of acute respiratory infections illustrates that the percentage of infection occurred during Jumada-Al-Thani (21.9%) in the

year 1435, Moharam and Rabi-Al-Thani (17.3%) in the year 1436 and Jumada-Al-Awwal (18%) in the year 1437 as shown in table 2. In the year 1435, acute respiratory infection among student was 811(63.7%) and among employees was 462 (36.3%); in the year 1436, the disease was 1177 (71.4%) in students while in employees was 471 (28.6%) and in the year 1437, the percentage was 747(64.7%) in students and 408(35.3%) in employees (table3). Table 4 illustrates Distribution of Acute Respiratory Infections (ARIs) among male school students showed that high percentages occurred among primary school students was high 35.6%, 45.5% and 48.1% in the years 1435, 1436 and 1437 respectively. The peak of ARIs occurred during the year 1435 and the minimum proportion rate of cases was found in 1436 (figure 1).

**Table 1:** Proportion of Acute respiratory infections (ARIs) among male school students and employees in Aleith during the last three years

Year	Acute Respiratory Infections (ARIs)	
	No	Proportion
1435	1273	50.2%
1436	1648	43.3%
1437	1155	47%

**Table 2:** Time distribution of Acute Respiratory Infections (ARIs) among male school students and employees according to nationality in Aleith during the last three years

Month	1435		1436		1437	
	No	%	No	%	No	%
Moharam	-	-	285	17.3%	181	15.7%
Safar	3	0.2%	266	16.1%	161	13.9%
Rabi-Al-Awwal	58	4.6%	157	9.5%	65	5.6%
Rabi-Al-Thani	248	19.5%	285	17.3%	160	13.9%
Jumada-Al-Awwal	203	15.9%	266	16.1%	161	18.5%
Jumada-Al-Thani	279	21.9%	-	-	171	14.8%
Rajab	160	12.6%	201	12.2%	154	13.3%
Shaban	-	-	17	1%	35	3%
Ramadan	-	-	-	-	-	-
Shawwal	11	0.9%	-	-	-	-
Zul-Qaadah	154	12.1%	85	5.2%	-	-
Zul-Hijjah	157	12.3%	86	5.2%	67	5.8%
Total	1273	100%	1648	100%	1155	100%

**Table 3:** Distribution of Acute respiratory infections (ARIs) among male school students and employees in Aleith during the last three years

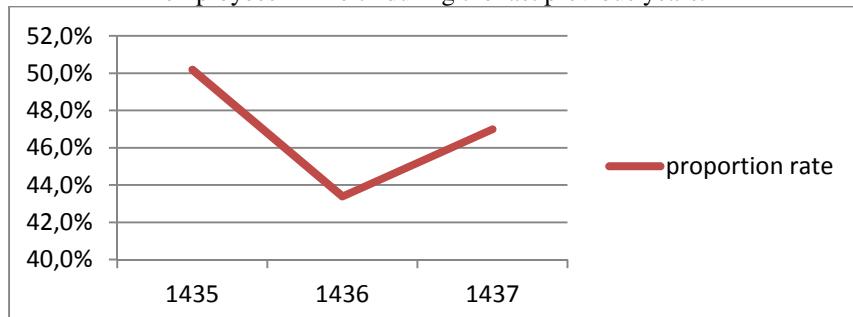
Year	Acute Respiratory Infections (ARIs)			
	Students		Employees	
	No	%	No	%
1435	811	63.7%	462	36.3%

1436	1177	71.4%	471	28.6%
1437	747	64.7%	408	35.3%

**Table 4:** Distribution of Acute respiratory infections (ARIs) among male school students in Aleith during the last three years according to the stage.

Year	Students					
	Primary School		Intermediate		Secondary	
	No	%	No	%	No	%
1435	289	35.6%	291	35.9%	231	28.5%
1436	535	45.5%	289	24.5%	353	30%
1437	359	48.1%	171	22.9%	217	29%

**Figure 1:** Time trend of acute respiratory infections among male school students and employees in Aleith during the last previous years.



## Discussion

Acute respiratory infections affect mostly children and increase mortality rate among them. The most important point is that ARIs are transmitted and spread by air; therefore it is easy to increase cases in a community. In our study the proportion of acute respiratory infections in the last three years among male student and employees in Aleith was high in the last three years. The schools represent a good environment for spread of acute respiratory infections unless prevention and precaution measures are taken place. This result is similar to findings in several previous studies. Of these studies, a study carried out in primary health care centers in northern Saudi Arabia, Acute Respiratory Infections (ARIs) were responsible for 50% of morbidity among children under 5 years of age (El-Gilani, 2000).

Most of acute respiratory infections are occurred in cold months. In this study, acute respiratory infections illustrates that the percentage of infection occurred during Jumada-Al-Thani in the year 1435, Moharam and Rabi-Al-Thani in the year 1436 and Jumada-Al-Awwal in the year 1437. Safak and Mumtaz (2016) found in their study in Turkey, the prevalence and seasonal distribution of respiratory viruses, our epidemiological data for the 2014 - 2015 season in Istanbul showed a predominance of infections with a

peak activity in early spring. Many viruses have characteristic seasonal patterns. Influenza virus and respiratory syncytial virus (RSV) often contribute to the winter peak, but other respiratory viruses such as human metapneumovirus (hMPV), parainfluenza viruses (Para), and coronaviruses (CoronaV) also circulate in the fall and winter (Christy and Christine, 2014).

In a comparison between student and employees (teacher, personnel and workers), the present study revealed that, acute respiratory infections were more frequent among student rather than among employees. This may attributed to the weakness of students and low awareness of prevention and control measures of acute respiratory infections.

The high percentages of Acute Respiratory Infections (ARIs) occurred among primary school students was high and this result was similar to so many studies that mentioned the most victims of ARIs were younger children particularly under five years . The peak of ARIs occurred during the year 1435 and the minimum proportion rate of cases was found in 1436.

## **Conclusion**

The study concluded that ARIs were still high and more frequent in winter months.

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