Acute respiratory infections (ARI) are a common disease and causes high mortality for children under 5 years old in many countries. According to a study by Wajula (1991), the incidence of ARI/total number of children in Iraq is 39.3%, in Brazil is 41.8%, in the UK is 30.5%, and in Australia is 34%.

The World Health Organization (WHO) states that every year approximately 15 million children die, of which about 5 million die from ARI. In Vietnam, ARI in children leads to morbidity and mortality. ARI contains 44% of common diseases. In the community, the ARI program (1997) indicated that a village with a population of 8000, children under 5 years old spent 1600-1800 times having ARIs each year, of which about 400-450 times children have pneumonia required the treatment. A program to prevent acute respiratory infection started in 1984, which aims to reduce the prevalence of acute respiratory infections in children and reduce mortality caused by this disease.

However, currently ARI has attracted much attention because the incidence of
the disease is still high and affects the health of children. This study aims to identify the prevalence of acute respiratory infections in pre-school children in Hue city and the distribution of the disease by age and gender.

2. Subjects and method

2.1. Research subjects: children in nursery schools in Hue city.

2.2. Research Methodology

2.2.1. Study Design: cross-sectional study with random sampling

2.2.2 Sample size: from the formula for calculating the sample size, 398 children aged 2 to under 6 years old were selected.

2.2.3. Data collection techniques

- Criteria for determination of ARI when accompanied by fever and one of the following symptoms: cough, shortness of breath, concave chest on withdrawal, runny nose, sore throat. A child was determined not to have an ARI if the criteria are not satisfied.
- Age was determined according to the WHO classification and divided into 04 groups: 2 to under 3 years old; 3 to under 4 years old; 4 to under 5 years old and 5 to under 6 years old.

2.2.4. Data collection method: A questionnaire was used to gather the variables. Questions about variables with disease or without disease was collected by maternal recall within 2 weeks of the survey.

2.2.5. Data analysis: software SPSS 11.5

3. Results

3.1. Characteristics of the study sample

<table>
<thead>
<tr>
<th>Ages</th>
<th>Male</th>
<th>Female</th>
<th>p</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 - &lt; 4 ages</td>
<td>28 (14.36%)</td>
<td>29 (14.08%)</td>
<td>&gt;0.05</td>
<td>57 (14.32%)</td>
</tr>
<tr>
<td>4 - &lt; 5 ages</td>
<td>61 (31.77%)</td>
<td>63 (30.58%)</td>
<td></td>
<td>124 (31.16%)</td>
</tr>
<tr>
<td>5 - &lt; 6 ages</td>
<td>103 (53.65%)</td>
<td>114 (55.34%)</td>
<td></td>
<td>217 (54.52%)</td>
</tr>
<tr>
<td>Total</td>
<td>192</td>
<td>206</td>
<td></td>
<td>398</td>
</tr>
</tbody>
</table>

Reviews: ratio of gender among different age groups is not statistically significant (p> 0.05).
3.2. The situation of acute respiratory infections

Table 3.2. The situation of acute respiratory infections in the study sample.

<table>
<thead>
<tr>
<th>Status</th>
<th>Frequency (n)</th>
<th>Rate (%)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARI</td>
<td>89</td>
<td>22.36%</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Not ARI</td>
<td>309</td>
<td>77.64%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>398</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Reviews: Surveys 398 children, 89 children met the criteria for ARI within the past two weeks with a rate of 22.36% (95% confidence interval)

Chart 3.1. The situation of acute respiratory infections in the study sample

Table 3.3. The situation of acute respiratory infections by age group distribution

<table>
<thead>
<tr>
<th>Age group distribution</th>
<th>ARI</th>
<th>Not ARI</th>
<th>p</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 - &lt; 4 ages</td>
<td>22 (11.64%)</td>
<td>35 (11.32%)</td>
<td>&lt;0.01</td>
<td>57 (14.32%)</td>
</tr>
<tr>
<td>4 - &lt; 5 ages</td>
<td>32 (22.88%)</td>
<td>92 (22.77%)</td>
<td></td>
<td>124 (31.16%)</td>
</tr>
<tr>
<td>5 - &lt; 6 ages</td>
<td>35 (65.48%)</td>
<td>182 (58.91%)</td>
<td></td>
<td>217 (54.52%)</td>
</tr>
<tr>
<td>Total</td>
<td>89</td>
<td>309</td>
<td></td>
<td>398</td>
</tr>
</tbody>
</table>

Reviews: Group 5 to under 6 years old has rate of ARI (65.48%) higher than the rest. This difference is statistically significant with p <0.01.
Table 3.4. The situation of ARI according to gender distribution

<table>
<thead>
<tr>
<th>Gender</th>
<th>ARI</th>
<th>Not.ARI</th>
<th>p</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>46 (51.69%)</td>
<td>146 (47.25%)</td>
<td>&gt; 0.05</td>
<td>192 (48.24%)</td>
</tr>
<tr>
<td>Female</td>
<td>43 (48.31%)</td>
<td>163 (52.75%)</td>
<td></td>
<td>206 (51.76%)</td>
</tr>
<tr>
<td>Total</td>
<td>89</td>
<td>309</td>
<td></td>
<td>398</td>
</tr>
</tbody>
</table>

Reviews: The rate of ARI in male is 48.24%, and 51.76% in female, but this difference is not statistically significant with p<0.05.

Chart 3.3. The situation of acute respiratory infections by gender distribution

4. Discussion

4.1. Prevalence of common acute respiratory infections

The research results acquired by (table 3.3.) surveying 398 children under 6 years of age found 89 children suffered from ARI within the past 2 weeks (proportion of 22.36%). This is prevalence of the disease, according to Dinh Thanh Hue: "describing the health phenomenon of a population at a certain time."

The author Nguyen Co Viet and colleagues investigated the three provinces of Ha Nam, Da Nang, Tay Ninh and observed an ARI prevalence is 22.8%.

According to Bui Duc Duong, Nguyen Duc Chinh ARI prevalence was 24.4%. According to other authors, ARI is the highest rate of infection compared with other diseases. The rate of ARI (22.36%) is similar to these authors but lower than the rate found in the studies of Nguyen Thi Man at 37.94%, and Nguyen Huy Binh at 38.67%. On the other hand, a study of Nguyen Tan Vien, Le Thi Ngoc Viet said that the younger children are, the higher ARI proportion is. In 0-12 month children, 54.90% had ARI, This rate in children of 13-36 months was 33.28% and 11.28% for children of 37-60 months. The participants of our study were older, aged from 2 to under 6 years and the investigation was carried out after a flood and change of season in Hue city, These
reasons made ARI easy to catch and develop in Hue at this time. This is relevant with the comments of the authors Ta Thi Anh Hoa, Nguyen Dinh Huong, Nguyen Tan Vien.

4.2. Acute respiratory infections by age group

Table 3.1. Showed that 5- under 6 years of age group got the highest ARI accounting for 65.48%,  4 - under 5 years of age group accounting for 22.88% and under 4 years of age accounting for 11.64%. The difference is statistically significant with p <0.05.

This result shows that in older children, the rate of ARI is higher. This is in contrast to study of other authors.

Research by Nguyen Tan Vien, Le Thi Ngoc Viet through 8084 for children of 5 years showed that ARI prevalence of children 2-12 months was 54.90%, 13-36 months at 33.28% and 37-60 months at 11.82%.

According To Anh Toan, Bui Duc Duong (2004), ARI in under 1 year old children was two times as high as that in 3 age groups, and 2.5 times as high as that in 4 age group.

The smaller the age is, the higher the rate of ARI is. According to Le Thi Nga and colleagues (1998) children aged 0-12 months have the highest ARI proportion at 62.9%.

However in our study, the participants were children in pre-schools. There are more older children who go to school than younger ones. The younger children tend to stay at home or in hospital for care when they are ill, they do not go to school, so we could not join the list of them in our investigation. For older children when they get mild sickness, they may continue schooling and thus remained on the books of the investigation. The proportion of children in the study is 2 – under 4 years of age is 57 (14.32%), 4 - 5 years old was 124 (31.16%) and 5 to under 6 years of age is 124 (31.16%), so in our study, the older children have a higher ARI rate.

Acute respiratory infections according to gender distribution Table 3.4 showed that the rate of males is 48.24% of whom 51.69% are infected with ARI. The proportion of females is 51.76%, of whom 48.31% are infected ARI. Results showed that the ARI rate in males is higher than that in females, however, this difference is not statistically significant (p> 0.05).

Nguyen Co Viet and colleagues estimated an ARI prevalence of which males account for 53.1% and females 46.9%. This rate has no statistical differences between males and females, which was also the case in the studies of Bui Duc Duong, Nguyen Duc Chinh.
5. Conclusions

From the results obtained in this study, we reached the following conclusions:

- The prevalence of acute respiratory infections within two weeks of the survey was 22.36%.
- The prevalence of acute respiratory infections increased with age.
- The prevalence of acute respiratory infections did not differ by gender.

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8. Tạ Thị Ánh Hoa, Chương trình Quốc gia phòng chống Nhiễm khanh hô hấp ở trẻ em, Bài giảng tại khóa tập 1- Trường Đại học Y Dược Thành phố Hồ Chí Minh, (1997), 484-486.
