

**Babylon University**  
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**Determination of the most prevalent microbes causing  
bronchitis and their antimicrobial susceptibility**

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## *Dedication*

To express my gratitude to those who supported and encouraged me, I dedicate this research

## **Acknowledgment**

If we were to properly acknowledge all the people who supported us, we would exhaust all the ink and paper on this planet. So, gentle reader, if we have omitted a deserving name, know that it was not our gratitude that was limited, but our page count. We owe a great debt to our supervisor (Dr. RashaAbdulmahdiFlayyih) , this research would be nothing without her support and guidance. Her clear and deep understanding of everything related to this research, as well as her ability to cut straight to the heart of a problem, will always stand before us as unforgettable lessons.

Special thanks also to all the members of College of Pharmacy for their help and encourage.

## Abstract

Bronchitis obliterans-regulating pneumonia is an inflammatory lung disease that affects the distal bronchioles, respiratory bronchi, bronchial ducts, and alveoli. Its cause is not generally known, but there are many known causes and associated systemic diseases. Including infection with various types of bacteria. This project aimed to detect the most prevalence bacteria that cause bronchitis and some factors that could be increase the opportunity of infection such as age of patient and gender. In addition the susceptibility of most recurrent bacteria for multiple antibiotics was detected. Therefore, multiple data from (Imam Al-Sadiq Hospital, Al-Noor Children's Hospital, Maternity and Children's Hospital hospitals) from (December/2022 –march/2023 ) were collected and analyzed. The results showed that the highest percentage of infection was recorded in streptococcus bacteria (37 %) whereas, the lowest percentage of infection in enterobacter and raoultella with pearcentag (3%). We also found that the age ranging from few months to ten years as well as the age above 70 is more susceptible to infect with bronchitis infection compare to other ages.

As for the gender, the results appear that female ad the largest ratio of injuries, reach to (52%) compare to (48%) for male

The analysis data of antibiotic sensitivity test for different bacteria have been done. The results showed that streptococcus is high resistant to Tetracycline (TE) with a ratio (40%), Vancomycin (VA) with a ratio (20%) compare to Cefpodoxime (CD), Chloramphenicol (C), Pencillin (P), Gentamicin (CN), Amikacin (AK), Trimethorprim (TMP) with a ratio (12%, 10%, 8%, 4%, 3%, 3%) respectively. While the Staphylococcus aureus is more resistant to pencillin (p) 49% compare to (Tetracyclin (TE), Vancomycin (VA), Chloramphenicol (C), Ciprofloxacin (CIP), Trimethorprim (TMP) ) with a ratio (20%, 12%, 9%, 8%, 2%) respectively.

Also we found that the Citrobactersp high resistant to (Gentamicin (CN), Amikacin (AK) ) with a ratio 30% of eachone compare to (Tetracyclin (TE),Chloramphenicol (C) , Erythromycin (E), Amoxicillin-clavulanic acid (AMC),Ciprofloxacin (CIP) ) with a ratio (15% ,11% , 9% ,3% ,2%). Will Kelbsiella is high resistant to Amikacin (AK)50% compare to (Gentamicin (CN), Cefotaxime(CTX) ) with a ratio 25% for each one. The Pseudomonas appear different resistant to (Amikacin (AK),Chloramphenicol (C),Gentamicin (CN), Imipenem (IM), Tetracyclin (TE), pencillin (p) , Ciprofloxacin (CIP), Amoxicillin-clavulanic acid (AMC), Ceftriaxon (CRO) ) with ratio (16% ,12%, 11% ,11% ,10% 10%, 10%, 10% ,10% ) respectively. The Enterobacter is resistant to (Amikacin (AK),Gentamicin (CN), Amoxicillin- clavulanic acid (AMC), Ceftazidime (CAZ) ) with a ratio 25% for each one. While the Roulotella is resistant to (Amoxicillin- clavulanic acid (AMC), Ceftazidime (CAZ) ) with a same ratio (50% ) for each other.

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# Introduction

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**Bronchitis** is an infection of the main airways of the lungs (bronchi), causing them to become irritated and inflamed [1].

The main symptom is a cough, which may bring up yellow-grey mucus (phlegm). Bronchitis may also cause a sore throat and wheezing.

The bronchi are the main airways in lungs, which branch off on either side of your windpipe (trachea). They lead to smaller and smaller airways inside lungs, known as bronchioles.

The walls of the bronchi produce mucus to trap dust and other particles that could otherwise cause irritation

In most cases, bronchitis will clear up by itself within a few weeks without the need for treatment. This type of bronchitis is known as "acute bronchitis[2].

In some cases, the symptoms of bronchitis can last much longer. If symptoms last for at least three months, it is known as "chronic bronchitis". There is no cure for chronic bronchitis, but there are several medications to help relieve symptoms. It is also important to avoid smoking and smoky environments, as this can make symptoms worse [3]. Most cases of bronchitis can be treated easily at home with rest, non-steroidal anti-inflammatory drugs (NSAIDs ) and plenty of fluids.



Most cases of acute bronchitis develop when an infection causes the bronchi to become irritated and inflamed, which causes them to produce more mucus than usual.

Smoking is the most common cause of chronic bronchitis. Over time, tobacco smoke can cause permanent damage to the bronchi, causing them to become inflamed. The bronchitis infection can be caused by either a virus or bacteria, although viral bronchitis is much more common. In most cases, bronchitis is caused by the same viruses that cause the common cold or flu. The virus is contained in the millions of tiny droplets that come out of the nose and mouth when someone coughs or sneezes.

# Section one    Theoretical part

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## **1. Types Of Bronchitis Infection**

### **1.1 Viral Infection**

The most common cause of acute bronchitis is a viral infection responsible for roughly 85-95% of acute bronchitis cases each year[5]. The most common viruses that can lead to bronchitis are influenza A and B, parainfluenza virus, rhinovirus, and adenovirus[5]. Most recently Corona Virus has been found to trigger bronchitis events. Frequently, bronchitis can develop from having a viral infection and because of the irritation done to the bronchi, symptoms may last for weeks. The bronchitis infection generally will resolve on its own and symptoms can be managed with pain relievers and cough suppressants or expectorants. To reduce the risk of contracting or passing on an infection, a person should frequently wash their hands, cough or sneeze into a tissue, and take additional care around the young, elderly, or those with weakened immune systems[6].

### **1.2    Bacterial Infection**

Bacterial Infection less common than viral infections, only about 10% of bronchitis cases are caused by bacteria[6]. Occasionally, bacterial bronchitis occurs during or after a patient has had a viral upper respiratory infection. The most common bacteria to cause acute bronchitis are Chlamydia pneumoniae, Bordetella pertussis (whooping cough), and Mycoplasma pneumonia [7].Acquiring acute bronchitis from bacteria is more likely when many people in an area are affected by an outbreak, exposed to others with a bacterial infection or have chronic medical problems. Bacterial bronchitis may be treated with prescribed antibiotics such as

amoxicillin, azithromycin, doxycycline, erythromycin, or cefuroxime. Because of the possible side effects associated with some antibiotics, patients should be sure to communicate any complications to their Heritage healthcare provider immediately. Additionally, the use of antibiotics can cause bacteria to develop resistance that may make future infections more difficult to treat. At Heritage we take extra special care to ensure you receive the most appropriate treatment[8].

## **2. Bronchitis Symptoms And Complication**

### **2.1 Symptoms**

The main symptom of bronchitis is a hacking cough. It is likely that cough will bring up thick yellow-grey mucus (phlegm), although this does not always happen[9].

Other symptoms of bronchitis are similar to those of other infections, such as the common cold or sinusitis, and may include:

-sore throat –headache -runny or blocked nose -aches and pains -tiredness

The cough may last for several weeks after other symptoms have gone. May also find that the continual coughing make chest and stomach muscles sore[10].

Some people may experience shortness of breath or wheezing, due to inflamed airways. However, this is more common with long-term (chronic) bronchitis[11].

### **2.2 complication**

Pneumonia is the most common complication of bronchitis. It happens when the infection spreads further into the lungs, causing air sacs inside the lungs to fill up with fluid. 1 in 20 cases of bronchitis leads to pneumonia.

People at an increased risk of developing pneumonia include:

- elderly people

- people who smoke
- people with other health conditions, such as heart, liver or kidney disease
- people with a weakened immune system

Mild pneumonia can usually be treated with antibiotics at home. More severe cases may require admission to hospital.[12].

### **3. Types Of Bronchitis**

#### **3.1 Acute bronchitis**

Acute bronchitis is a clinical term implying a self-limited inflammation of the large airways of the lung that is characterized by cough without pneumonia. The disorder affects approximately 5% of adults annually. Acute bronchitis is the ninth most common illness among outpatients, as reported by physicians[13].

Acute bronchitis can affect people of all ages, but is most common in younger children under the age of five. It is more common in winter, and often develops following a cold, sore throat or flu [14].

##### **3.1.1 causes**

This is most often the same viruses that cause colds and the flu. It may also be caused by a bacterial infection, or by physical or chemical agents that are breathed in. These may include dusts, allergens, and strong fumes, including those from chemical cleaning compounds or tobacco smoke[15].

Viruses are usually considered the cause of acute bronchitis but have been isolated in a minority of patients. Those isolated in acute bronchitis (from the most to the least common in large series) include influenza A and B viruses, parainfluenza virus, respiratory syncytial virus, coronavirus, adenovirus, and rhinovirus. Human

metapneumovirus has been identified as a causative agent. A recent French study involving adults who had been vaccinated against influenza showed a viral cause in 37% of 164 cases of acute bronchitis, of which 21% were rhinovirus[16]. Thus, the yield of specific pathogens varies according to several factors, including the presence or absence of an epidemic, the season of the year, and the influenza vaccination status of the population[17].

Bacterial species commonly implicated in community-acquired pneumonias are isolated from the sputum in a minority of patients with acute bronchitis. However, the role of these species in the disease or its attendant symptoms remains unclear, because bronchial biopsies have not shown bacterial invasion. In some cases, atypical bacteria are important causes, including *Bordetella pertussis*, *Chlamydia pneumoniae*, and *Mycoplasma pneumoniae*. Some data have suggested that *B. pertussis* may underlie 13 to 32% of cases of cough lasting 6 days or longer, although in a recent prospective study, *B. pertussis* comprised only 1% of cases of acute bronchitis [18].

### **3.1.2 Symptoms**

The following are the most common symptoms of acute bronchitis. However, each person may experience symptoms differently. Symptoms may include:

- Back and muscle pain, Cough: first dry (non-productive), later, a lot of mucus is produced , Chest soreness , Chills , Feeling tired and achy , Headache , Runny nose , Slight fever , Shortness of breath , Sore throat , Watery eyes and Wheezing

The symptoms of acute bronchitis may look like other conditions or medical problems. Talk with a healthcare provider for a diagnosis [19].

### 3.1.3 Diagnosis

Acute bronchitis should be differentiated from acute inflammation of the small airways, asthma or bronchiolitis, which typically presents as progressive cough accompanied by wheezing, tachypnea, respiratory distress, and hypoxemia. It should also be distinguished from bronchiectasis, a distinct phenomenon associated with permanent dilatation of bronchi and chronic cough. The diagnosis of chronic bronchitis is reserved for patients who have cough and sputum production on most days of the month for at least 3 months of the year during 2 consecutive years. The acute exacerbation of chronic bronchitis, identified by the worsening air flow and symptoms in such patient[20].

Any of these tests may be used to help confirm a diagnosis:

**Chest X-rays.** A test that uses invisible radiation beams to make images of internal tissues, bones, and organs, including the lungs.

**Arterial blood gas.** This blood test is used to analyze the amount of carbon dioxide and oxygen in the blood.

**Pulse oximetry.** An oximeter is a small machine that measures the amount of oxygen in the blood. To get this measurement, a small sensor is taped or clipped on a finger or toe. When the machine is on, a small red light can be seen in the sensor. The sensor is painless and the red light does not get hot.

**Cultures of nasal discharge and sputum.** Testing the sputum you cough up or swab from your nose may be done to find and identify the microorganism causing the infection.

**Pulmonary function tests.** These are tests that help to measure the ability of the lungs to move air in and out of the lungs. The tests are usually done with special machines that you breathe into[21].

## **3.2 Chronic bronchitis**

Chronic bronchitis is long-term inflammation of the bronchi. It is common among smokers. People with chronic bronchitis tend to get lung infections more easily. They also have episodes of acute bronchitis, when symptoms are worse[22].

To be classified as chronic bronchitis must have a cough and mucus most days for at least 3 months a year, for 2 years in a row. Other causes of symptoms, such as tuberculosis or other lung diseases, must be ruled out[23].

People with chronic bronchitis have chronic obstructive pulmonary disease (COPD). This is a large group of lung diseases that includes chronic bronchitis. These diseases can block air flow in the lungs and cause breathing problems. The 2 most common conditions of COPD are chronic bronchitis and emphysema[24].

### **3.2.1 causes**

Chronic bronchitis is not caused by a virus or bacteria. Most experts agree that the main cause of chronic bronchitis is cigarette smoking. Air pollution and your work environment may also play a role. This is especially true if you also smoke .

Bronchitis symptoms often happen with other lung diseases, such as:

- Asthma- Pulmonary emphysema- Scarring of the lungs (pulmonary fibrosis)- Sinusitis- Tuberculosis- Upper respiratory infections[25].

### **3.2.2 Symptoms**

Below are the most common symptoms of chronic bronchitis. But each person may have slightly different symptoms.

Symptoms may include:

Cough, often called smoker's cough , Coughing up mucus (expectoration), Wheezing and Chest discomfort

People with chronic bronchitis often have a cough and make mucus for many years before they have shortness of breath [26].

Chronic bronchitis may cause: Disability , Frequent and severe infections that affect your airways ,Narrowing and plugging of your breathing tubes (bronchi) and Trouble breathing

Other symptoms may include:

- Bluish fingernails, lips, and skin because of lower oxygen levels
- Wheezing and crackling sounds with breathing.
- Swollen feet.
- Heart failure.

The symptoms of chronic bronchitis may look like other lung conditions or health problems[27].

### **3.2.3 Diagnosis**

The following tests:

**Pulmonary function tests** These tests help to measure the lungs' ability to move air in and out of lungs. The tests are often done with special machines that breathe into. They may include:

-Spirometry. This test uses a spirometer device to see how well lungs are working. It is one of the simplest, most common pulmonary function tests. It may be used for any or all of these reasons:

- To find out how well lungs take in, hold, and move air
- To keep watch on a lung disease
- To see how well treatment is working
- To find out how serious lung disease is
- To find out if lung disease is restrictive or obstructive. Restrictive means less air will get into lungs. Obstructive means less air will get out of lungs.



-Peak flow monitor. This test measures the fastest speed you can blow air out of lungs. Inflammation and mucus in the large airways in the lungs narrow the airways. This slows the speed of air leaving the lungs. It can be measured with a peak flow monitor. This measurement is very important in telling how well disease is being controlled.

**Arterial blood gas** This blood test is used to check the amount of oxygen and carbon dioxide in blood. It also measures the acidity of blood.

-Pulse oximetry

An oximeter is a small machine that measures the amount of oxygen in blood. To get this measurement, a small sensor is taped or clipped onto a finger or toe. When the machine is on, a small red light can be seen in the sensor. The sensor is painless, and the red light does not get hot.

**Chest X-ray** This test makes pictures of your internal tissues, bones, and organs, including the lungs.

**CT scan** This imaging test uses a combination of X-rays and computer technology to make images of the body. A CT scan shows detailed images of any part of the body, including the bones, muscles, fat, and organs. CT scans are more detailed than general X-RAYS[28].

## **SECTION TWO**

## **Practical part**

In this part of the study, the methodology used and the results obtained is presented.

### **2. Methodology**

The methodology used to perform this study is described in the following sections.

#### **2.1 Data Collection**

Medical data was collected from Imam Al-Sadiq Hospital, Al-Noor Children's Hospital, Maternity and Children's Hospital, Marjan Teaching Hospital, Medical City, Respiratory Hospital Center) and external laboratories.

The microbiology laboratory was visited, with saliva samples only, from February 2020 to February 2023, regardless of age. At the end, collected data was analyzed.

#### **2.2 Ethical considerations**

Patient privacy and confidentiality of information were obtained

The anonymity of the participants was guaranteed. Search only for searching[29].

### 3.Results

We conducted a research on people complicated with the bronchitis and the number of people who did a sputum test and that we got form about 100 case.

#### 3.1 gender

Bronchitis Infection can affect on males and females of all ages but females are more likely to get a bronchitis infection more than males. As shown in the figure below:

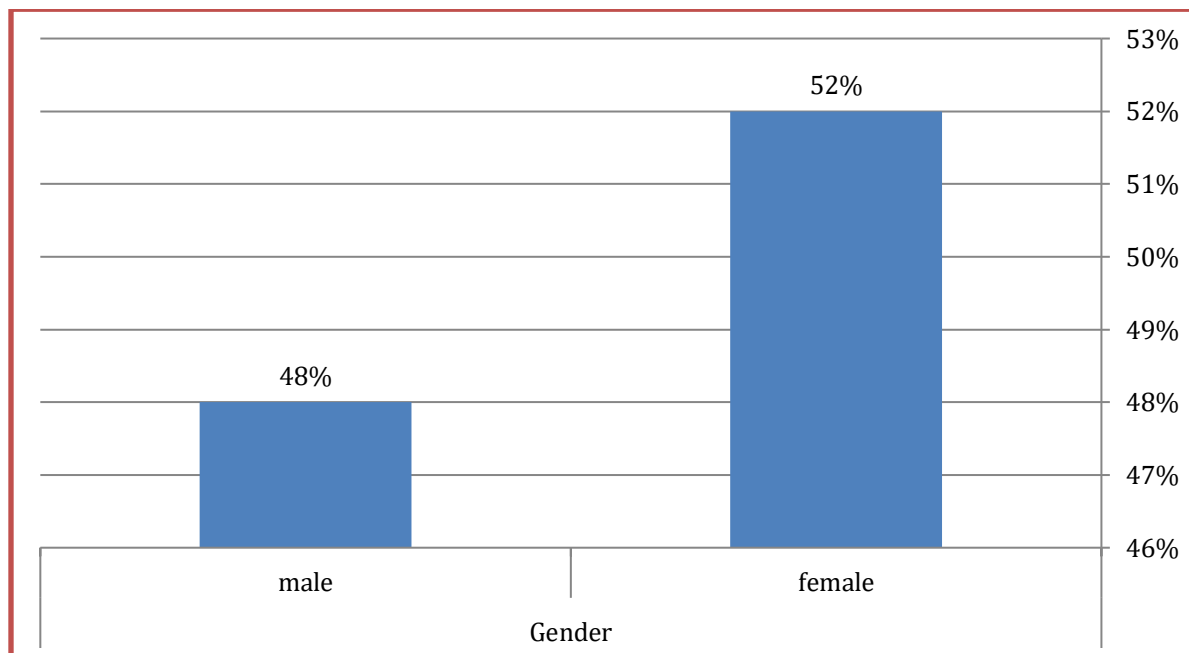


Figure 1. the percentage of patients according to the gender.

With regard to gender, figure 1 shows the effect of gender as a risk factor on bronchitis infection. The results showed that females are more susceptible to bronchitis infection with a ratio of 52% compared to 48% for males.

### 3.2 Age

With regard to ages, the ages of the participants ranged from 1 day to 80 years, but the children with age less than 10 years more susceptible to bronchitis infection . As shown in the figure below:

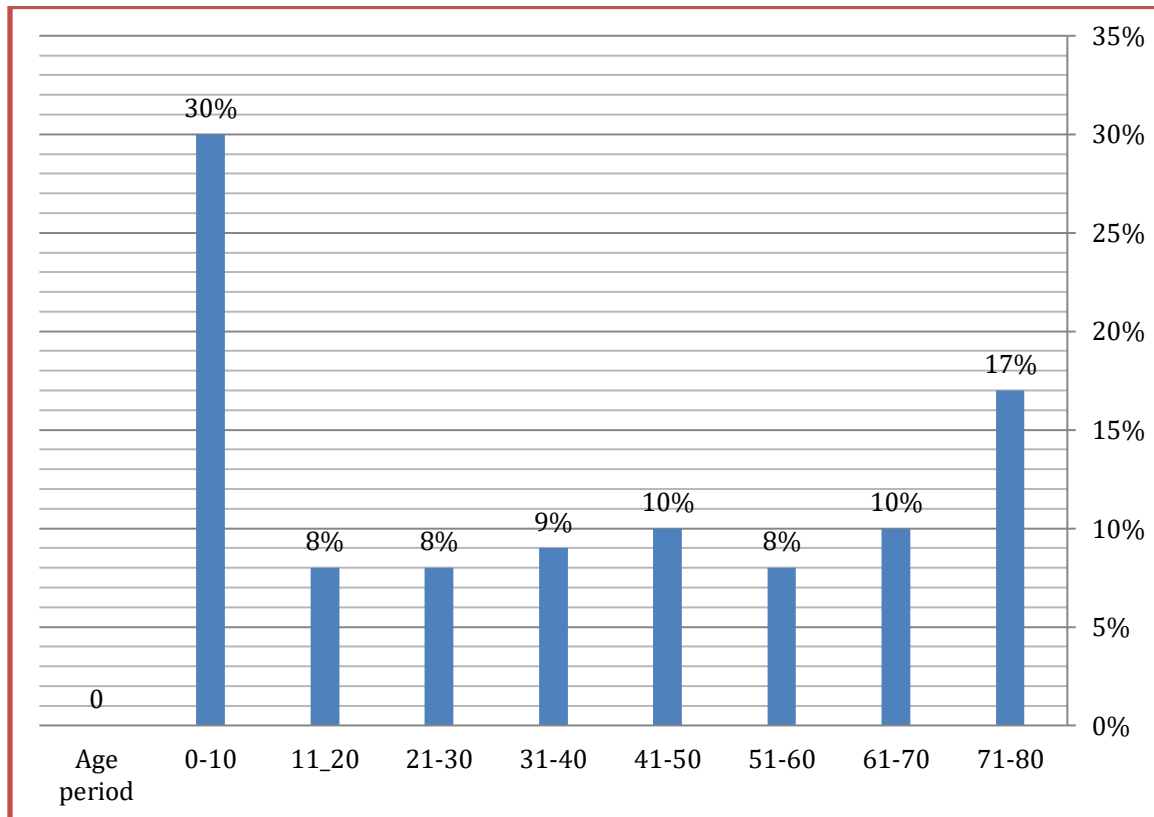


Figure 2. The percentage of patients according to the age.

With regard to ages,( Fig. 2) shows the effect of ages as risk factor on the bronchitis infection.The result showed that the children with age less than 10 years more susceptible to bronchitis infection with 30% compare to other ages.

### 3.3 bacteria

Bacterial infections have a large impact on public health. A Bronchitis Infection is caused by micro-organisms, The figure below show the most prevalence bacteria.

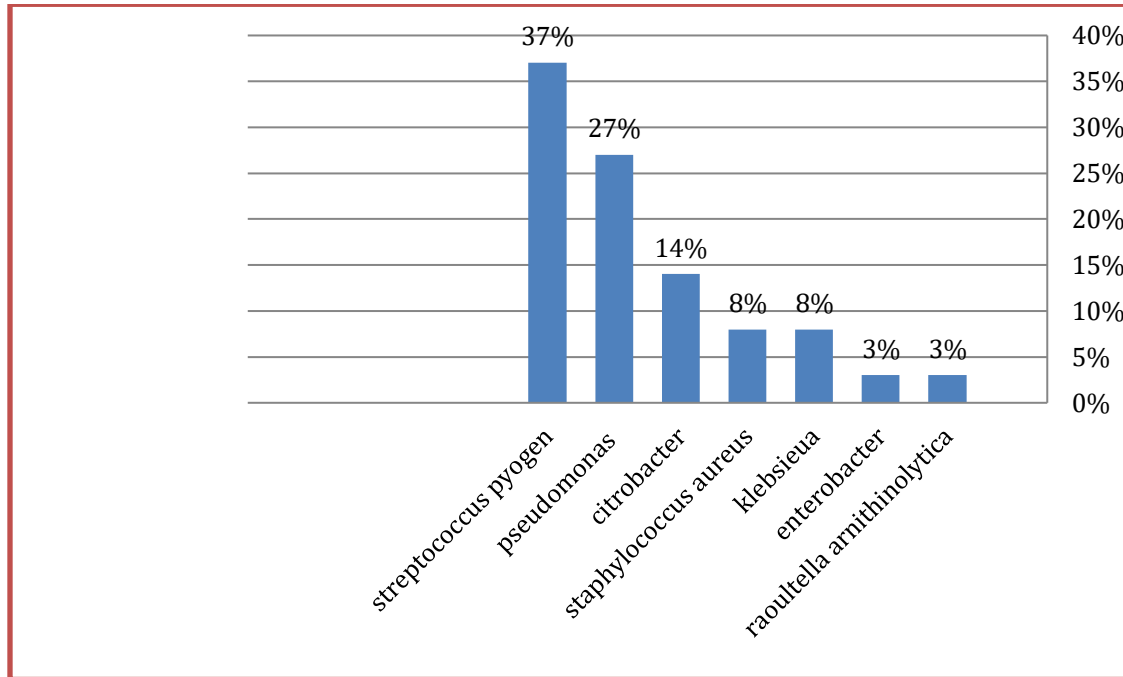


Figure 3. The percentage of bacteria involved in bronchitis.

Fig3 showed the ratio of most prevalence bacteria that involved in the bronchitis. The result found that the, bacteria Streptococcus pyogen showed a high percentage 37% compared to the rest of the samples collected, followed by Pseudomonas bacteria 27%, and then citrobacter14% .

### 3.4 Bacteria Gram Stain

Bronchitis Infection can result from gram positive and gram negative bacteria but gram negative are more likely to causes a bronchitis infection than gram positive . As shown in the figure below:

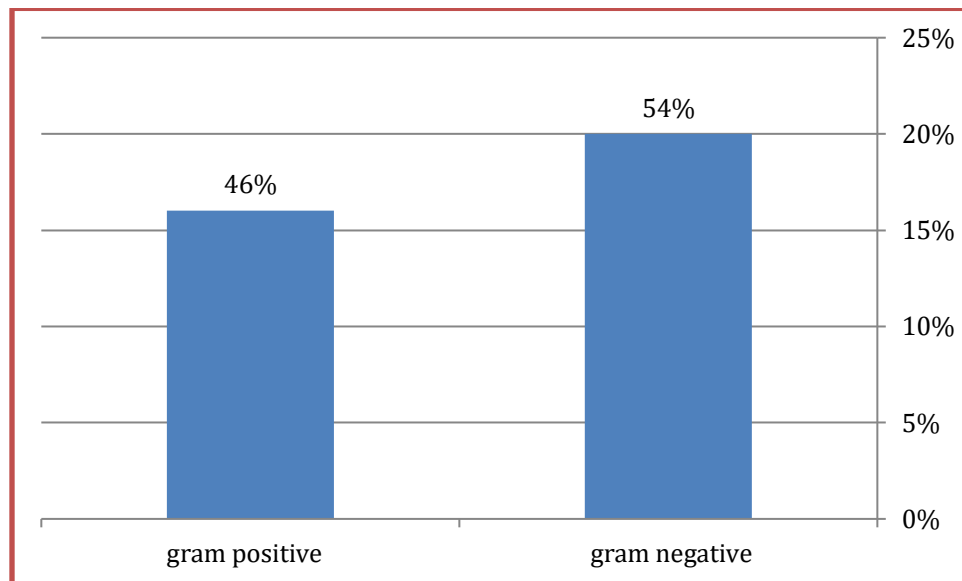


Figure 4. Percentage of infected bacteria according to Gram stain

This figure show The ratio of bacteria involved with bronchitis according to the gram stain classification. It was observed that Gve- is more prevalence in bronchitis 54% compare to Gve+ bacteria 46%.

### 3.5 Antimicrobial resistant of Streptococcus to various antibiotics

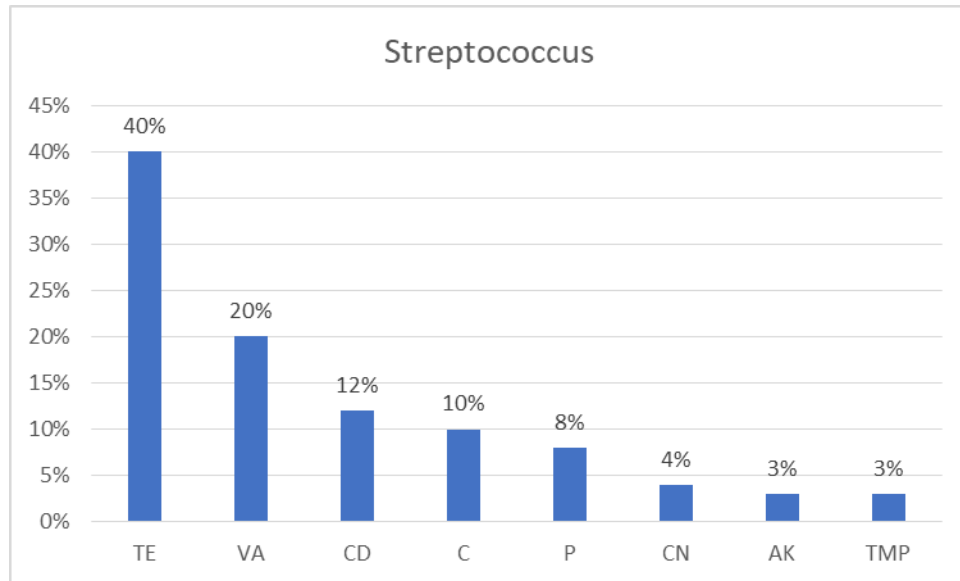
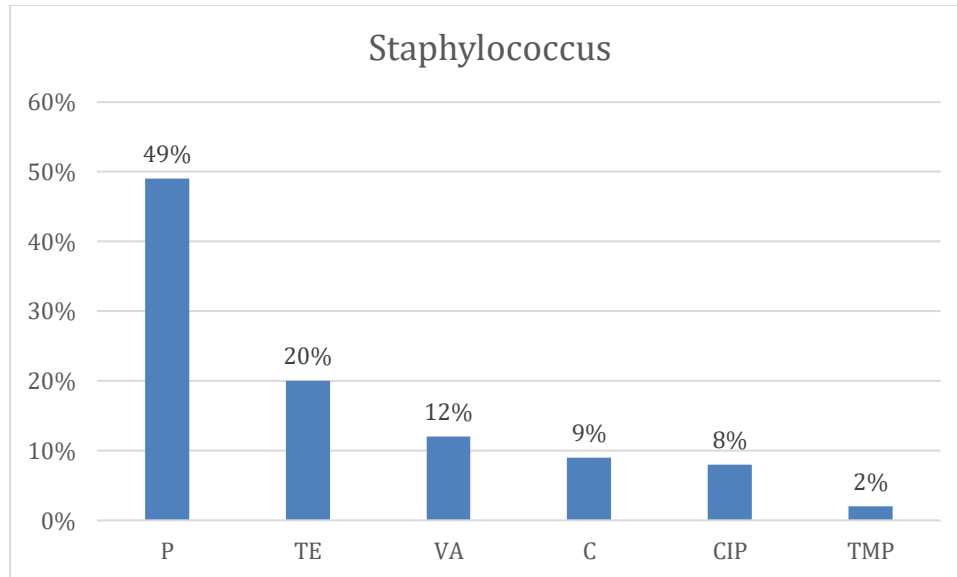


Figure 5 Streptococcus resistants

This figure show the streptococcus is high resistant to Tetracycline (TE) with a ratio (40%) , Vancomycin (VA))with a ratio(20%) compare to Cefpodoxime(CD) , Chloramphenicol (C) , Pencillin (P), Gentamicin (CN), Amikacin (AK), Trimethorprim (TMP) with a ratio (12%, 10%, 8%, 4%, 3%, 3%) respectively.

### 3.6 Antimicrobial resistant of Staphylococcus to various antibiotics



**Figure 6 Stapylococcusresistants**

This figure shows resistance the Staphylococcus aureus is more resistant to pencillin (p) 49% compare to (Tetracyclin (TE), Vancomycin (VA), Chloramphenicol (C) ,Ciprofloxacin (CIP), Trimethorprim (TMP) ) with a ratio(20% ,12% ,9% ,8% ,2%) respectively.



### 3.7 Antimicrobial resistant of Enterobacter to various antibiotics

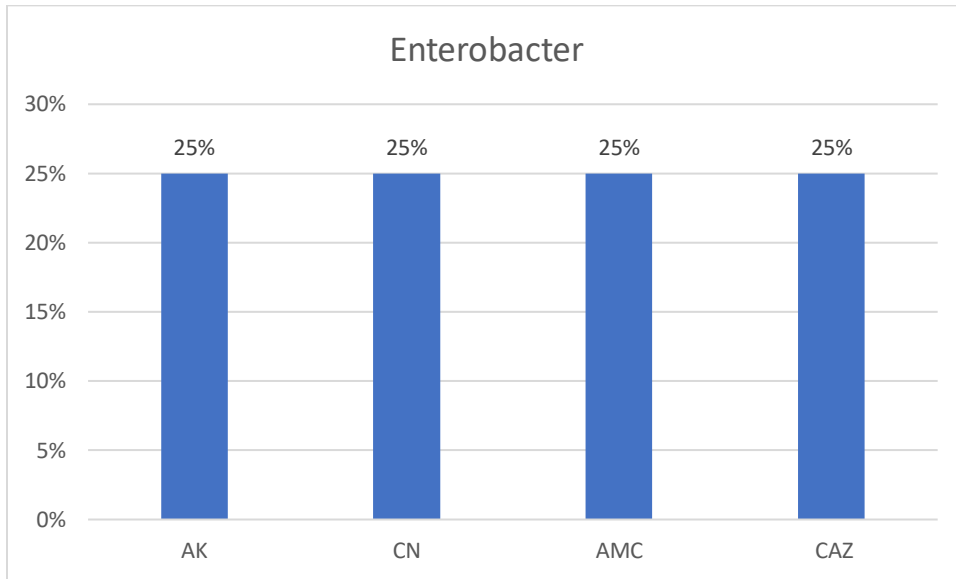


Figure 7 Enterobacter resistant

In this figure The Enterobacter is resistant to (Amikacin (AK), Gentamicin (CN), Amoxicillin- clavulanic acid (AMC), Ceftazidime (CAZ) ) with a ratio 25% for each one.

### 3.8 Antimicrobial resistant of Citrobacter to various antibiotics

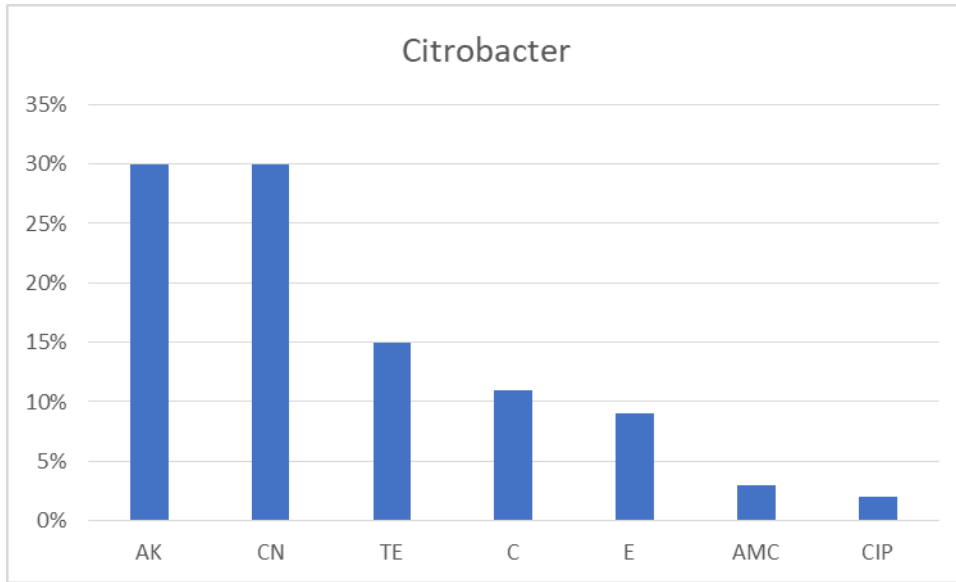


Figure 8 Citrobacterresistants.

This figure showthe Citrobactersp high resistant to (Gentamicin (CN),, Amikacin (AK) ) with a ratio 30% of each one compare to (Tetracyclin (TE), Chloramphenicol (C) , Erythromycin (E), Amoxicillin-clavulanic acid (AMC), Ciprofloxacin (CIP) ) with a ratio (15% ,11% , 9% ,3% ,2%). the resistance of antibiotic to citrobacter.

### 3.9 Antimicrobial resistant of kelbsiella to various antibiotics

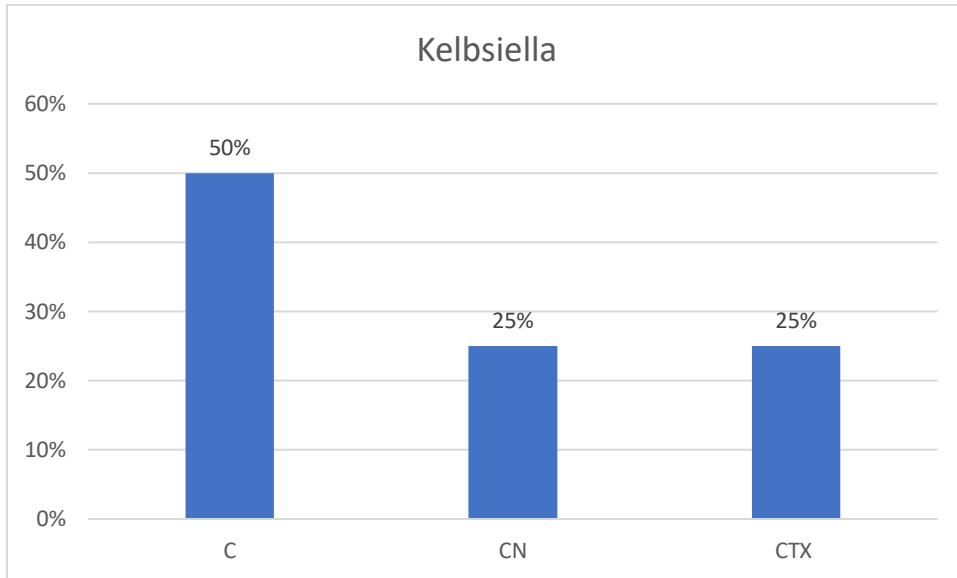


Figure 9 Kelbsellaresistants.

This figure show the Kelbsiella is high resistant to Chloramphenicol 50% compare to (Gentamicin (CN), Cefotaxime(CTX) ) with a ratio 25% for each one

### 3.9 Antimicrobial resistant of Pseudomonas to various antibiotics

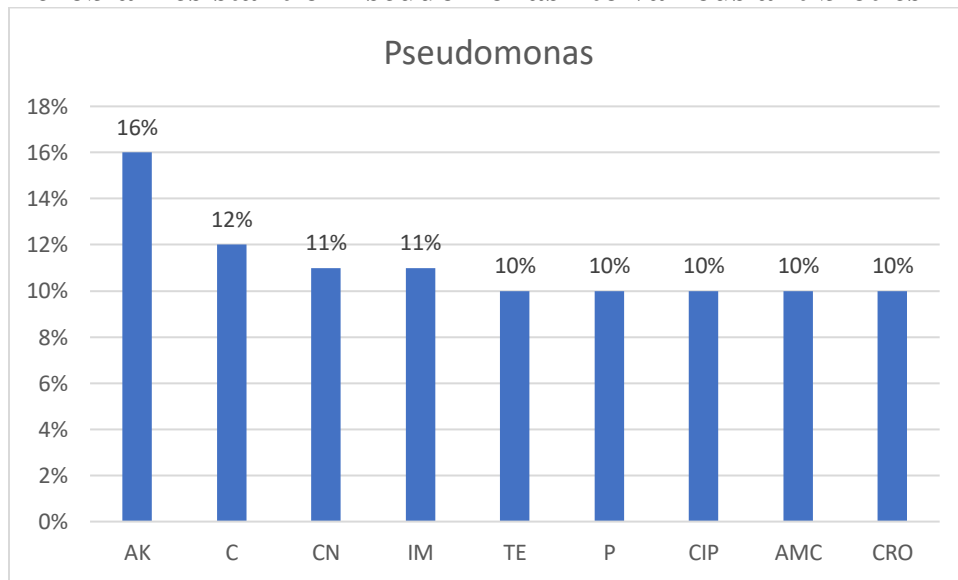


Figure 9 Pseudomonasresistants

This figure show The Pseudomonas appear different resistant to (Amikacin (AK), Chloramphenicol (C), Gentamicin (CN), Imipenem (IM), Tetracyclin (TE), pencillin (p) , Ciprofloxacin (CIP), Amoxicillin- clavulanic acid (AMC), Ceftriaxon (CRO) ) with ratio (16% ,12%, 11% ,11% ,10% 10%, 10%, 10% ,10% ) respectively.

### 3.10 Antimicrobial resistant of Raoultella to various antibiotics

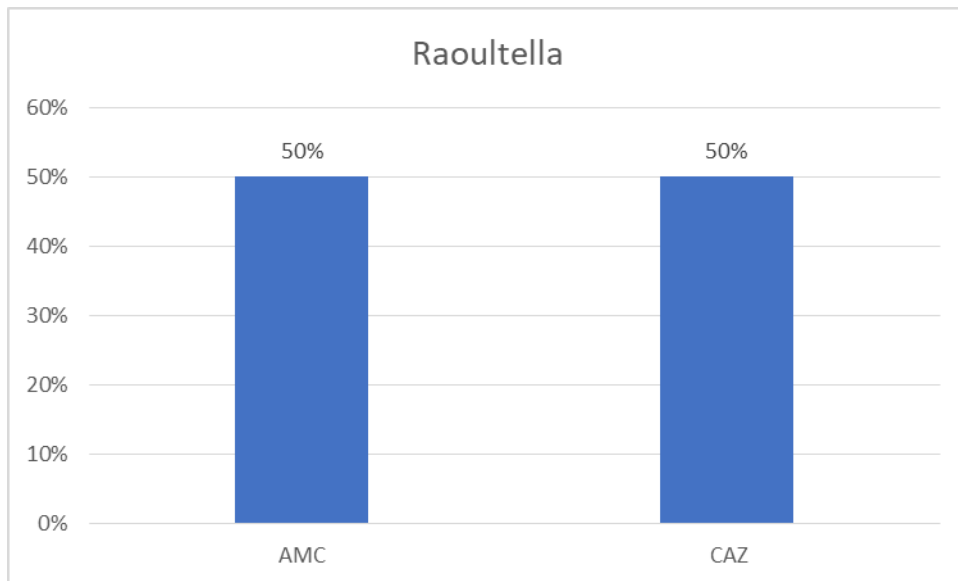


Figure 10 Raoultella resistant.

This figure show the resistance the Raoultella is resistant to (Amoxicillin-clavulanic acid (AMC), Ceftazidime (CAZ) ) with a same ratio (50% ) for each other.

## 4. Discussion

Bronchitis is inflammation of the airways of the lungs. bronchitis produces sputum. This is the cause of the cough.

Bronchitis are two types (acute , chronic) Acute bronchitis: It usually develops quickly, and the patient feels better after two to three weeks. Most people, usually

otherwise healthy, who develop acute bronchitis recover without developing any complications.

Chronic bronchitis is a disease that recurs and lasts for a relatively long time, especially in smokers. Chronic bronchitis is defined as a cough with persistent phlegm for three or more months a year, for two consecutive years.[1]

According to the isolates that were collected and found, the incidence of bronchitis in females was higher than that of males **figure (1)** the reasons behind these things are not simple. But women have smaller lungs than men .as for the age groups The highest incidence rate was in the age group less than 10 years, with a rate of 30% **figure (2)**. with regard to the types of bacteria that cause the disease as in **figure (3)** show, the first place for is streptococcus, **figure (4)** The result showed that Tetracycline have high antibacterial activity against Streptococcus, this agree with [5]. The presence of tetracycline-resistant pathogens limits the use of these agents in treatment of disease [16]. While the Amikacin have highest activity against Pseudomonas this agree with [13]. Also the Amikacin and Gentamicin have highest activity against Citrobacter this agree with [13]. While the penicilline have highest activity against Staphylococcus this agree with [23]. While the Chloramphenicol have highest activity against Klebsiella this agree with [20]. Also the Amikacin, Gentamicin, Amoxicillin-clavulanic acid, Ceftazidime as in **figure(7)** have highest activity against Enterobacter this agree with [26],[27]. While the Amoxicillin-clavulanic acid and the Ceftazidime have highest activity against Raoultella this agree with The most common drug tetracycline The presence of tetracycline-resistant pathogens limits the use of these agents in treatment of disease.

Antimicrobial resistance mechanisms fall into four main categories: (1) limiting uptake of a drug; (2) modifying a drug target; (3) inactivating a drug; (4) active drug efflux.

Aminoglycoside have 4 resistance mechanism:•

1/Drug uptake limitation:

cell wall polarity

2/modifying adrug target:

ribosomal limitation,methylation

3/Drug inactivation:

Aminoglycoside modifying enzymes, acetylation, phosphorylation, adenylation

4/And efflux:

lactams have 4 resistance mechanism:•

1/Drug uptake limitation:

Decrease number of porins,no outer cell wall.

2/Drug target modification:

Gram pos\_ alteration in PBPs

3/Drug inactivation:

Gram postive,gram negative lactam

4/efflux pump:

Fluoroquinolones have 3 mechanisms :•

1/Drug target modification :

Gram neg—DNA gyrase modification, Gram pos—topoisomerase IV

2/Drug inactivation:

Acetylation of drug

3/Efflux :

MATE, MFS, RND

Cephalosporins have 1 mechanisms

Changed selectivity of porin

Tetracyclins have 4 resistance mechanisms:

1/Drug uptake limitation :

Decreased number of porins

2/Drug target modification:

ribosomal protection

3/Drug inactivation:

antibiotic modification, oxidation

4/efflux pump:

MFS, RND

## 5. Conclusion

Bronchitis is inflammation of the bronchi (large and medium-sized airways) in the lungs that causes coughing. Bronchitis usually begins as an infection in the nose, ears, throat, or sinuses. The infection then makes its way down to the bronchi. Symptoms include coughing up sputum, wheezing, shortness of breath, and chest pain. Bronchitis can be acute or chronic. [1]

The aim of this study is to identify the most prevalent microbes causing Bronchitis in children and their antimicrobial susceptibility in the community who attended to

hospitals at Hilla City. We study the population that was drawn from patients attending IMAM AL-SADIQ hospital , AL-NOOR hospital , MATERNITY AND CHILDREN hospital, and CHEST HEALTH CENTER FOR RESPIRATORY DISEASES. The data about 100 patients with Bronchitis was collected. They were made up from both gender. Finally, the data was analyzed for detecting deferent aspects such as gender , ages , types of bacteria, ratios of sensitive and resistant antibiotics of different bacteria species. The study concluded, regard to gender, where we noticed that the number of females was a large percentage , and low percentage in male. According to ages ,the most infected ages and in large proportion in the children with age less then 10 years and slightly lower in older patients (above 70 years) **figure 2**. Also found the most infected bacteria are Streptococcus and the lowest infected bacteria are Raoulleta. The most resistant antibiotics of streptococcus is tetracycline. Thus healthcare professional must improve their knowledge of Bronchitis , change their attitude towards it and improve both treatment and primary and secondary prevention of bronchitis . since there is a high prevalence of Bronchitis among children combined with an increasing population there is great need for further knowledge about this area and also a great need for intervention studies. To prevent , detect and treat Bronchitis among children , the connection between the associated factors and Bronchitis should be explored further . more attention has to be given to children with Bronchitis and it has to be prevented.



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