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A Survey On Asthma Prediction Using Data Mining Tecniques

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Abstract :Data mining is one of the important and improving area of research with the objective of finding new approach and techniques. In medical field data mining is becoming popular from day to day through detecting and solving many problems by using data mining functions. In this paper, we present a levels of asthma to identifying their levels by diagnosing their symptoms with testing results. We use decision tree, regression algorithm to classify the levels of asthma. Our predictive model will help in categorizing of asthma and also suggesting the best possible treatment. The choice of treatment is depend on severity of the disease. Classification method is designed to learn from the past success and failures and then predict the outcome.

Index Terms : Regression, Classification.

1. INTRODUCTION

As a great number of data are collected in database, classification analysis has been a very active research subject in data mining field. Data mining provides tool to integrate every method organically, making them show their strong points and hide their weakness. We need to apply an algorithm, which can handle all kinds of symptoms of asthma in children and aged peoples also.

According to above, the article puts a method based on classification algorithm using regression. In cognitive psychology, human process is divided into different phase, mainly it has primary cognition and second cognition besides cognition has different strategies. When we see complicated cases or things, the most important cognitive process of human is that firstly we classify the things and then further cognize every kind in order to make the complicated things arrived at the simplified aim. After classifying depended and independent variables we categorized asthma as either intrinsic or extrinsic. Further categorization yield in severe or general asthma. Input to the model is in the where symptoms and their best possible treatments are stored.

Classification is further extended to groups as severe or general. In file format various symptoms like wheezing, coughing, shortness of breath, chest tightness etc. are entered. Then the algorithm works on the data and outputs the result in the form of classification indicating the best possible treatment.

2. CLASSIFICATION OF ASTHMA

Asthma is global heath problem and it is prevailing increasingly all over the world. Asthma is a disease that cause that airways of the lungs to tighten and swell. It is common among children and teenagers. The asthma attack happen when the lungs are not getting sufficient air to breathe and the child may cough or wheeze during an attack.

It is a lung disease with following characteristics:

- Smokers
- Sports mans
- Employees
- General peoples

2.1. Levels Of Asthma

Classification is a data mining function that assigns items in a collection of target categories or classes. The goal of classification is to accurately predict the target class for each case in the data. Asthma is chronic inflammatory disorder of the airway.

The four levels of asthma are,

- Mild Intermittent
- Mild Persistent
- Moderate Persistent
- Severe Persistent



The image shows that the right side of the lung function is normal and the left side of the lung function is abnormal that is inflamed lung.

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a. Levels of asthma diagrammatical



b. Classification related diagram



Classification is a data mining function that assigns items in a collection to target categories or classes. The goal of classification is to accurately predict the target class for each case in the data.

For example, We have to 100 samples

80 in class A, 10 in class B, 10 in class C

Scenario 1: All 100 samples were assigned to class A by using the formula, we get accuracy equals 80%.

Scenario **2**:10 samples belongs to B were correctly assigned to class B.

10 samples belongs to C were correctly assigned to class C as well.

30 samples belongs to A correctly assigned to class A. The rest 50 samples belongs to A were incorrectly assigned to C. By using this formula, we got accuracy of 50%.

Best way to calculate classification accuracy: formula x = t/n*100

- T is the number of correct classification.
- N is the total number of sample.

3. TYPES OF TESTINGS

- Major Testing :
- Spirometry
- Peak flow

Additional Testing :

- Methacholine challenge
- Nitric oxide test
- Imaging test
- Allergy test
- Spectrum eosinophil's

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4. CONCLUSION

In this paper we applied two techniques classification and regression. The classification approaches are associated with data mining task to evaluate the results. Classification is used for finding the sensitivity, specificity, and accuracy of asthma prediction levels. By using regression techniques we can able to access the diagnosis of asthma patient results. Lung function find out the various breathing sounds of a particular persons. In this survey classification and regression techniques gives the best accuracy for the asthma patient.

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