**INFO 5770 - GROUP PROJECT - PHASE 1 (PROBLEM IDENTIFICATION AND MOTIVATIONAL EXPLORATION)**

**TITLE: "A COMPARATIVE ANALYSIS OF RESPRATORY DICEASE CONCENTRATING ON ASTHMA AND INFLUENZA"**

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**INTRODUCTION:**

The report focuses on the investigation of two common medical disorders using data from MEPS: Influenza (ICD-10: J11) and Asthma (ICD-10: J45). Given that they continue to afflict millions of people worldwide, influenza and asthma are among the most common medical disorders in the globe. Given that they both cost health care systems a respectable amount of money, they both provide for intriguing topics for study based on data records and patterns.

The MEPS data set was filtered by using the ICD-10 code to assess the record count availability for each of the conditions. After the filtration process and the removal of duplication, it came out that both the conditions have sufficient data to carry out further analysis and insight. This report presents an overview of the data filtering process, as well as background information on the selected medical conditions.

**DATA SOURCE:**

Medical Expenditure Panel Survey (MEPS), condition-level file (h214.csv)

**DATA SELECTION AND FILTERING PROCESS:**

Our group examined the conditions of interest, J11 (influenza due to other recognized influenza virus) and J45 (asthma), using the MEPS dataset, notably the condition-level file (h214.csv). Using filters on the "ICD10CDX" field, we started by separating the entries related to each condition.

Two formulas in Microsoft Excel were utilized to guarantee the precision of the data. Using the formula {=UNIQUE(Sheet1!A2:A)}, all unique ICD-10 codes were first extracted from the dataset. This assisted us in locating unique records pertaining to the circumstances. Then, by filtering the dataset according to the particular ICD-10 codes, we utilized the formula {=COUNTA(UNIQUE(FILTER(Sheet1!B2:B1000, Sheet1!A2:A1000=A2)))} to count the number of unique entries for each condition.

Through this process, we identified 1,755 records for J45 (asthma) and 888 records for J11 (influenza due to other identified influenza virus). Both counts exceeded the 500-record threshold required for the project, allowing us to proceed with these conditions.

**BACKGROUND ON INFLUENZA AND ASTHMA:**

**INFLUENZA (ICD-10 CODE: J11)**

Flu viruses primarily damage the respiratory system and are highly transmissible. Code J11 means influenza due to other known influenza virus. Common Sign & Symptom are chills, fever, myalgia, cough, cold, sore throat, and fatigue. Flu may lead to severe complications which take about one to two weeks to heal even though everyone seems to be fine after a short time, flu poses various complications for young children, senior citizens and people with other chronic diseases.

The annual epidemics results to millions of cases of severe disease including hundreds of thousands of fatal conditions due to influenza, a major global health concern (Mallia & Johnston, 2007). The only sure way of preventing this virus is through immunization and treatment with antiviral medications for those with compromised systems (Li et al., 2021).

**ASTHMA (ICD-10 CODE: J45)**

Asthma is chronic health condition in which the bronchi become irritable and narrowed and symptoms include, high pitched sound while breathing, difficulty in breathing, contraction of the chest and a cough. Some Triggers that bring Asthma attack include, Allergens, Respiratory infections, Cold air, Stress and many more (Veerapandian et al., 2018).

Asthma is a primary health condition that can be experienced by anybody – even though, it tends to strike children most often. More than 300 million people around the worldwide have asthma, data shared by the WHO (World Health Organization). People with the condition have to take inhalers, medicines and have to avoid things that trigger the condition (Jha et al., 2019). Hospitalization of a patient with severe asthma is a key issue in the field of healthcare, so it must be the focus of effective study and control.

**SIMILARITY BETWEEN ASTHMA and infulenza:**

Influenza and asthma share the following similarities because both diseases involve pathophysiological changes to the respiratory system and how these changes are worsened by the other. Both diseases cause airway inflammation; chronic airway inflammation with increased narrowing is characteristics of asthma and acute inflammation of respiratory tracts due to viral infection in influenza (Jha et al., 2019). Some of the mild signs include coughing, wheezing, shortness of breath, and chest stiffness. Flu can aggravate the effects of asthma, and therefore increasing the susceptibility of seizing severe asthmatic episodes in people who have both illnesses. Apart from this, the treatments included are somewhat related, they include: bronchodilators and corticosteroids in part, and preventive measures also cover vaccination. The flu vaccinations are very important to asthmatic patients to avoid complications resulting from the influenza (Veerapandian et al., 2018).

**CONCLUSION:**

In the following analysis, we obtained data on influenza and asthma from the MEPS database for the years 2007 and 2008, having excluded records with the ICD-10 codes J11 and J45. Again, by using Excel Formulas, we found that for Asthma there are total 1755 Records and for Influenza there are total 888 Records. Both affects a large population in the world with flu affecting millions during outbreaks and asthma which is a lifestyle condition for many (Wang et al., 2023).

This analysis forms a basis for future research into the effects of these conditions on health and or the costs incurred to the economy. Future works can be directed to examine trends in treatment, risk factors and demographics.

**CONTRIBUTION OF GROUP MEMBERS:**

KAUSHIKAN DINAKARAN: Data filtering and analysis, report drafting

ARJUN PALANISWAMY: Research on asthma and influenza and topic selection, data validation

ROHITH SINGH THAKUR: Background research, editing, and final report formatting

USHA AAVULA: MS Excel support, verification of duplicate removal

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