

MASTER'S SEMINAR ANNOUNCEMENT
Department of Statistics

Validity of Short-Term Beta-Agonists Prescriptions as a Marker for Asthma

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Eckhart Hall, Room 110, 5734 S. University Avenue

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ABSTRACT

Asthma is a chronic disease that affects the smooth muscle in the airways. Prevalence of asthma is thought to have increased over last 2 decades; however, the associated mortality and morbidity have increased at a rate greater than what would be expected based on the observed prevalence increase, especially in poorer populations. Asthma is a major public health problem, and an increasing concern in the United States.

Most researchers have focused on the relationship between asthma hospital visits (HV) or emergency department visits (ED), and air quality. But prescription refills for medication such as short-term acting Beta-Agonists may be a more sensitive indicator of asthma than ED or hospital admissions. The goal of this study is to validate the use of short-term Beta-Agonists as a marker for asthma. The target population in this study is the Medicaid population in the city of Chicago.

Mantel-Haenszel method will be used to characterize the association between short-term Beta-Agonist prescriptions and the traditionally studied asthma outcomes (ED and HV) as a function of time lag. The analysis will be adjusted for the subject and within-person correlation. Bootstrap, a re-sampling method, will be performed to quantify uncertainty. As an alternative approach, the receiver operating characteristic (ROC) analysis will be used to assess the accuracy of the use of short-term Beta-Agonist prescriptions in diagnosing asthma, treating ED and HV as a gold standard.

Our research results demonstrate the validity of the short-term Beta-Agonist use as a marker for asthma. Future work will focus on developing more effective methods for adjusting for time-varying confounding factors and between-subject heterogeneity.