**ALY6080**

**PROJECT OVERVIEW**                           4/14/2021

**AI for Asthma**

**Company: Keva Health**

**Collaborator: Northeastern**

Project Overview for Analytics capstone students

**Background:**

According to the researchers, a patient with asthma endures approximately 2190 hours of experiencing and treating or not treating their asthma symptoms. During 15-minute clinic visits, only a short amount of time is spent understanding and treating what is a complex disease, and only a fraction of the necessary data is captured in the electronic health record. Predictive analytics, using machine learning and artificial intelligence can revolutionize asthma care and detections.

Asthma is one of the most common chronic diseases globally and is characterized by acute deteriorations. Allergic asthma is the most common type of asthma. About 90% of kids with childhood asthma have allergies, compared with about 50% of adults with asthma. The same allergies that give some people sneezing fits and watery eyes can cause an asthma attack in others. The symptoms that go along with allergic asthma show up after you breathe things called allergens (or allergy triggers) like pollen, dust mites, or nuts. If you have asthma (allergic or non-allergic), it usually gets worse after you exercise in cold air or after breathing smoke, dust, or fumes. Sometimes even a strong smell can set it off. Because allergens are everywhere, it’s important that people with allergic asthma know their triggers and learn how to prevent an attack. Air quality is an important and useful measure for asthma patients. Very humid air is also heavy, which may make it harder to breathe. In general, indoor humidity levels that range from 30 to 50 percent may be best for those with asthma. This humidity level is also usually comfortable for most people. Keeping the air at the right humidity level may help reduce asthma symptoms. There is not much research done on impact of air quality on ER visits for Asthma.

**Goal:** Provide analytics using publicly available datasets (airnow, emergency room visits in the US) to provide a visual representation and ability to analyze air quality and the impact on ER visits related to Asthma.

**Deliverables:**

1. Identify and download the airnow dataset.
2. Look for public datasets on emergency room visits (eg:[data.gov](https://nam12.safelinks.protection.outlook.com/?url=http%3A%2F%2Fdata.gov%2F&data=04%7C01%7Cv.atherley%40northeastern.edu%7C1a00a32311b1496886a708d900619813%7Ca8eec281aaa34daeac9b9a398b9215e7%7C0%7C0%7C637541241457105213%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=M6WltnPZFsk1xpQScstvYVfpJY87f0vnMASu%2Fxj9dbE%3D&reserved=0), HCUP, NCHS etc)
3. Create a visualization and provide an analysis of impact of air quality on asthma patients
4. Additional use cases for helping asthma patients using this data