A wide range of health conditions are related to the physical state of the environment. By comprehensively bringing together multiple large scale datasets on both health and the environment, new insights can be gained on health triggers and new predictive tools built to improve public health and reduce costs.

Epidemiological studies have consistently shown an association between air pollution respiratory and cardiovascular conditions. For the first time we comprehensively examine the relationship between all emergency room admissions and environmental conditions.

As an example of this approach all emergency room admissions for 2002 in Baltimore city were compared to a set of environmental parameters. The two panels below show the correlation of two environmental parameters, the CO abundance and temperature, with the number of emergency room admissions in Baltimore City for each month of 2002 with Asthma ICD-9-CM Code 493.91, a sudden intense and continuous aggravation of a state of Asthma, marked by dyspnea to the point of exhaustion and collapse and not responding to the usual therapeutic efforts.

Remarkably, a range of psychologically and mentally related issues increase when the level of air pollution increases. The study yielded some interesting results, showing a correlation between certain air pollutants (i.e. particulate matter) and specific types of schizophrenia (ICD 9 Code 295.9).