National Institute of Environmental Health Sciences

# Effects of nitrogen dioxide and meteorological conditions on the number of patients presenting to emergency department

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**Abstract:**

In recent years, there is ever more awareness about the impact of polluted air on the incidence of acute and chronic cardiac disease. The aim of this study was to evaluate the correlation of certain meteorological factors, NO2 concentration in the air and number of patients presenting to Emergency Department of Internal Medicine, Sestre milosrdnice University Hospital Center (ED), during a two-year period, with special reference to the incidence of patients with a cardiac referral diagnosis according to the International Classification of Diseases (ICD-10). The total number of patients was 44,245, of which 12,946 with a cardiac referral diagnosis. Meteorological parameters (temperature and air pressure) during the warm and cool periods of the year and NO2 concentrations during the study period were recorded. Study results showed the total number of patients presenting to ED to be greatest in summer, while the number of cardiac patients was highest in winter. There was positive correlation between the number of ED patients with cardiac referral diagnosis and increasing NO2 concentrations in the air. Despite the fact that the highest concentrations of NO2 were recorded in the cool period of the year when there were more traffic jams, the influence of the air NO2 concentration on the number of patients with cardiac diagnoses was statistically most significant in the warm period of the year when the slightest increase in the concentration of NO2 in the air significantly increased the number of cardiac patients presenting to ED. These results indicate the need for further research of the importance of photochemical processes and their impact on cardiovascular patients.

**Source:** http://www.ncbi.nlm.nih.gov/pubmed/22919997

## Resource Description

**Exposure :**

weather or climate related pathway by which climate change affects health

Air Pollution, Meteorological Factors, Meteorological Factors

**Air Pollution:** Interaction with Temperature, Other Air Pollution

**Air Pollution (other):** NO2

**Geographic Feature:**

resource focuses on specific type of geography

None or Unspecified

**Geographic Location:** ☒

resource focuses on specific location

Non-United States

**Non-United States:** Europe

**European Region/Country:** European Country

**Other European Country :** Croatia

**Health Impact:** ☒

specification of health effect or disease related to climate change exposure

Cardiovascular Effect, Other Health Impact

**Cardiovascular Effect:** Other Cardiovascular Effect

**Cardiovascular Disease (other):** cardiac emergency deptartment admissions

**Other Health Impact:** admissions to Emergency Department of Internal Medicine

**Resource Type:** ☒

format or standard characteristic of resource

Research Article

**Timescale:** ☒

time period studied

Time Scale Unspecified