



“Gheorghe Asachi” Technical University of Iasi, Romania



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## PROXY EXPOSURE INDICATORS FOR INDOOR AIR POLLUTION, HEALTH IMPACT AND DEPRIVATION IN THE MARCHE REGION, ITALY

**Katiuscia Di Biagio<sup>1\*</sup>, Marco Baldini<sup>1</sup>, Luca Formenti<sup>2</sup>, Aurora Luciani<sup>2</sup>,  
Lara Rita Napolitano<sup>2</sup>, Iliana Sciarra<sup>2</sup>, Jacopo Dolcini<sup>2</sup>, Silvia Bartolacci<sup>1</sup>,  
Thomas Valerio Simeoni<sup>1</sup>, Emilia Prospero<sup>3</sup>**

<sup>1</sup>Environmental Epidemiology Unit - Regional Environmental Protection Agency of Marche, 5 Ruggeri Luigi St., Ancona, Italy

<sup>2</sup>School of Hygiene and Preventive Medicine – Marche Polytechnic University, 10/A Tronto St., Ancona (AN)

<sup>3</sup>Department of Biomedical Sciences and Public Health, Section of Hygiene – Marche Polytechnic University, 10/A Tronto St., Ancona (AN)

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### Abstract

Literature supports the correlation between worse indoor air quality, lower socio-economic status and disease, such as asthma, Extrinsic Allergic Alveolitis (EAA) and Carbon Monoxide Intoxication (COI). In order to determine the extent of the phenomenon in the Marche Region, hospitalization risk for asthma, EAA and CO intoxication was assessed in association with Particulate Matter 2.5 (PM<sub>2.5</sub>) air concentration and socio-economic Deprivation Index (DI).

Hospital discharge records of residents of the Marche Region with diagnosis of asthma, EAA and COI were analysed between 2006-2013. We then identified DI value and average PM<sub>2.5</sub> levels for each municipality, using atmospheric modelling systems. Association between these proxy indicators of indoor air quality and relative risk (Confidence Interval - CI 90%) of hospitalization for the considered health outcomes was evaluated.

Data analysis shows a higher number of hospitalizations for asthma with the increase of PM<sub>2.5</sub> concentration quintiles and suggests a possible correlation between socio-economic deprivation and EAA and CO intoxication.

**Keywords:** asthma, carbon monoxide, deprivation index, extrinsic allergic alveolitis, particulate matter

*Received: February, 2020; Revised final: June, 2020; Accepted: July, 2020; Published in final edited form: October, 2020*

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\* Author to whom all correspondence should be addressed: e-mail: [katiuscia.dibiagio@ambiente.marche.it](mailto:katiuscia.dibiagio@ambiente.marche.it); Phone: +390712132756; Fax: +390712132740