



# Assessing the Impact of a Clean Air Action Plan on Paediatric Asthma Hospitalisation Rates in Casablanca's Industrial Zone: A Policy Analysis, 2016

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## Abstract

Air pollution in urban industrial zones is a significant public health concern, particularly for children's respiratory health. Casablanca's industrial area has historically experienced elevated levels of ambient air pollutants, prompting the implementation of a comprehensive Clean Air Action Plan. This policy analysis aimed to assess the impact of the Clean Air Action Plan on paediatric asthma hospitalisation rates within Casablanca's industrial zone. Its objective was to determine whether the policy intervention was associated with measurable health improvements for this vulnerable group. A retrospective, quasi-experimental design was employed. Paediatric asthma hospitalisation data were collected from major public hospitals serving the industrial zone. These data were analysed alongside ambient air quality monitoring data for key pollutants, specifically particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>), from periods before and after the policy's implementation. Trends and correlations were examined. Following the implementation of the action plan, a marked reduction in annual average PM<sub>2.5</sub> concentrations was observed. This improvement in air quality was associated with a statistically significant decrease in paediatric asthma hospitalisation rates. A reduction of approximately 18% in these rates was recorded in the period following the policy's full implementation compared to the preceding period. The Clean Air Action Plan appears to have been effective in reducing air pollution levels and, concomitantly, paediatric asthma hospitalisations in Casablanca's industrial zone. This suggests that targeted regulatory and mitigation strategies can yield tangible public health benefits for children's respiratory health. Policymakers should sustain and strengthen the enforcement of the existing action plan. Further recommendations include expanding air quality monitoring networks, implementing targeted health surveillance programmes for at-risk paediatric populations, and considering similar integrated air quality and health strategies in other industrial urban centres.

health policy, paediatric asthma, hospitalisations, Morocco, environmental health This analysis provides empirical evidence on the health co-benefits of an air quality policy for a vulnerable paediatric population in an African urban-industrial context, informing future public health and environmental policy decisions.

**Keywords:** *Air pollution, paediatric asthma, environmental health policy, North Africa, health impact assessment, urban industrial zones, hospitalisation rates*

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